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Impact of the Implementation of Class-Wide Function-related  
Intervention Teams on Adolescent Student Behavior

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy in Curriculum and Instruction

by

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## **Abstract**

Disproportionality in discipline has been well-documented in the research literature (Achilles, McLaughlin, & Croninger, 2007; Losen & Gillespie, 2012; Gregory, Skiba, & Mediratta, 2017; Skiba, Peterson, & Williams, 1997). Students from diverse ethnic backgrounds and students with disabilities are removed from their classrooms more frequently than their Caucasian peers without disabilities (Losen & Gillespie, 2012). This disparate removal of students from diverse ethnic backgrounds and students with disabilities has spurred education stakeholders to call for removal of punitive policies and replacement with positive behavior interventions and supports. This study sought to evaluate the impact of Class-Wide Function-related Intervention Teams (CW-FIT) on adolescent student behaviors and teacher behaviors. Specifically, the classroom management strategy was investigated to determine if adolescent students from diverse ethnic backgrounds and adolescent students with disabilities in inclusion classroom settings would demonstrate increases in on-task behavior with the introduction of the intervention. Additionally, the current study evaluated the effectiveness of the intervention at increasing teacher behavior specific praise statements and decreasing teacher reprimands

Teachers and students were recruited for participation from a middle school represented by students from diverse ethnic backgrounds and low socio-economic status. Four classrooms were selected for inclusion. Three of the four classrooms were co-taught settings with high numbers of students receiving special education services. Teachers in each of the participating classrooms were trained to implement the CW-FIT intervention in each of their classrooms.

A multiple-baseline across participants design was used to evaluate the effects of the intervention. The results of the study indicated a functional relation between the implementation of the CW-FIT intervention and increases in on-task behavior of students from diverse ethnic

backgrounds and students with disabilities who showed low levels of on-task behavior prior to treatment. In addition, the findings also showed improvements in teacher behavior specific praise statements; however, no effect was observed with teacher reprimands. Finally, social validity measures were taken to assess satisfaction levels of teachers and students participating in the study. Results indicated that the direct consumers of the intervention found the goals, procedures, and outcomes of the intervention to be favorable.

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## Dedication

To my darling children. And, to my students both past and future



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## CHAPTER ONE

### Introduction

#### **Discipline Disparity**

Disparity in discipline resulting in disproportionate exclusion of students from low socioeconomic status, students from diverse ethnic backgrounds, and students with disabilities has been well-documented in research literature (Achilles, McLaughlin, & Croninger, 2007; Losen & Gillespie, 2012; Gregory, Skiba, & Mediratta, 2017; Skiba, Peterson, & Williams, 1997). Exclusionary tactics used by schools to address problem behaviors include strategies, such as, office referrals, suspensions, and expulsions. The schools' objective in implementing such strategies is to decrease the future occurrence of problem or disruptive behaviors by removing students from their learning environments. Schools have relied on exclusionary tactics to address student problem behaviors for decades and the use of such measures has continued to increase since the 1970s (Losen & Skiba, 2010; Welch & Payne, 2010). The use of punitive discipline does not result in positive outcomes for students and students who are removed from the classroom are most often from low socioeconomic status, students from diverse ethnic backgrounds, and students with disabilities. As such, education stakeholders have called for the removal of exclusionary tactics and replacement with positive behavior interventions.

The purpose of this study is to evaluate the intervention Class-Wide Function-related Intervention Teams as a positive behavior intervention in diverse adolescent classrooms. This two-tier intervention, which includes a group contingency, behavior specific praise, a self-monitoring procedure, and help cards, has demonstrated positive outcomes on student and teacher behavior. This study will explore the impact the intervention has on on-task and off-task behavior of students and praise and reprimand statements made by teachers. The study will

extend current research literature by evaluating the outcomes and validity of the intervention when implemented with adolescent student populations in diverse classroom settings.

### **Punitive Discipline Outcomes**

The use of punitive behavior management strategies does not result in positive outcomes (Gregory, Skiba, & Noguera, 2010; Losen & Gillespie, 2012; Mallet, 2016). Researchers suggest that students who are forcibly removed from learning environments for discipline purposes may become disconnected from their school and may ultimately drop out as a result (Mallett, 2016). In addition, high rates of exclusion does not result in increased school safety or improvements in student performance (Losen & Gillespie, 2012). In fact, under the application of “zero-tolerance” punitive behavior management strategies, students with disabilities, specifically, those from African-American backgrounds are far less likely to graduate high school and far more likely to end up incarcerated (National Council on Disability, 2015). This link between exclusionary tactics and arrest is so apparent when assessing school performance data that is often referred to as the “School-to-Prison Pipeline” (Mallett, 2016). The “School-to-Prison Pipeline” phenomenon suggests exclusionary, punitive policies and procedures implemented by schools to remove students from the classroom for problem behaviors does not result in increased compliance or performance of these students but facilitates these students entry into juvenile delinquent systems (Mallett, 2016).

The use of exclusionary tactics results in the loss of instructional time and as such may increase the student achievement gap (Gregory, Skiba, & Noguera, 2010). Students removed from the classroom for problem behavior miss out on instruction and opportunities for learning. Removal of students with and without disabilities from the classroom and/or school infringes on their right to appropriate education as outlined in the *Every Student Succeeds Act (ESSA)*. *ESSA*



was signed into law in 2015, and encourages states to create accountability systems to measure different components of student achievement in order to identify schools that require additional intervention and support (Darling-Hammond, Bae, Cook-Harvey, Lam, Mercer, Podolsky, & Stosich, 2016). In accordance with the act, many states require school districts to report suspension and expulsion data as one measure of accountability (Hammond et al., 2016). The reporting of suspension and expulsion data is an additional measure to hold schools accountable for the number of suspensions issued and the demographics of the students most often removed from classroom settings.

### **Impact of Disproportionate Discipline**

Despite requirements to report exclusionary discipline data, many schools continue to rely on punitive management policies resulting in removal of students from the classroom. As previously mentioned, such tactics are not implemented equally, but are instead most often used to remove marginalized populations from the classroom (Losen & Gillespie, 2012). Researchers have suggested that schools are employing exclusionary discipline strategies with greater frequency (Welch & Payne, 2010). Krezmien, Leone, Achilles (2006) determined when reviewing Maryland suspension data from 1995-2003 that the rate of suspensions increased 58.7% from 85,071 suspensions in 1995 to 134,988 suspensions in 2003.

When examining the demographic characteristics of students who have been removed from the classroom for demonstration of problem behaviors, researchers have revealed clear patterns and trends in exclusionary data. In an examination of national data, Losen and Gillespie (2012) determined 87% of the three million students suspended each year are from African American, American Indian, Latino, and Asian Pacific Islander ethnic backgrounds. In fact, their assessment of the data established that inherently one out of every six African American students

is suspended each year while only one out of every twenty white students is suspended (Losen & Gillespie, 2012). In an additional review of national suspension data, Achilles and colleagues (2007) identified low socioeconomic status as a predictor of removal. Their research found that students from families with low income were more likely to be removed from their classroom for demonstration of problem behaviors than their more affluent peers. The final demographic characteristics of students most often removed from the instructional environment is disability. Researchers have revealed that students with disabilities are suspended twice as often as their peers without disabilities (Losen & Gillespie, 2012) and students diagnosed with Emotional Behavioral Disorders, Attention Deficit Hyper Disorder, and other health impairments are associated with higher rates of exclusion (Achilles, McLaughlin, Croninger, 2007). Because research indicates clear disparity in the reliance of exclusionary tactics in that students from diverse ethnic backgrounds, low socioeconomic status, and students with disabilities are at greater risk for exclusion due to their demographic characteristics, researchers have sought to identify the factors contributing to disproportionate discipline.

### **Disproportionate Discipline Contributing Factors**

Researchers have evaluated various factors to determine if they contribute to disproportionate discipline rates. One factor that has been evaluated is classroom demographics. However, researchers have determined that the majority of students who are excluded are still a minority in K-12 school enrollment. Despite the constant growth in diversity, white students represent half of public school K-12 enrollment with the other half of the population comprised of students from African American, Hispanic, Asian, Native American, and various other ethnic backgrounds (Kena, Hussar, McFarland, de Bray, Mussu-Gillette, Wang, Zhang,

Rathbun,...Valaz, 2015). Students with disabilities make up only 13% of the enrollment population (Kena et al., 2015).

Oliver and Reschley (2010) have suggested teacher preparation is a possible cause of disproportionate discipline rates of minorities and student with disabilities. The researchers found both special educators and general educators are incredibly unprepared to meet the needs of diverse student populations in their classrooms (Oliver & Reschley, 2010). Because of the emphasis on Least Restrictive Environment (LRE) and Free Appropriate Public Education (FAPE) as outlined in Individuals with Disabilities Education Act (IDEA), 60% of students with a disability spend 80% or more of their instructional day in a general education classroom setting (Kena et al, 2015). Oliver and Reschley (2010) suggest that general education teachers may be unable to effectively engage students with disabilities, which likely results in increases in problem behaviors. Thus, in order to effectively manage classroom problem behaviors and minimize disruptions to student learning, teachers may rely on exclusionary tactics to maximize instructional time.

Researchers have also suggested that school policies and leadership views may impact disproportionate discipline rates. Rausch and Skiba (2005) found that principals who believe in punishing problem behaviors and blame such behavior on ineffective parenting or poverty used exclusionary tactics with greater frequency. The researchers suggested that principals who believed appropriate behavior could be taught, relied on student removal less frequently. Thus, school leadership beliefs may attribute to disproportionate discipline.

Further, researchers have assessed the role implicit bias and stereotypes may play in the overuse of exclusionary tactics. Implicit bias refers to stereotypes that are automatic and unconscious and can drive people to make certain assumptions about an individual solely due to

his/her race and/or sex (Gilliam, Maupin, Reyes, Accavitti, & Shic, 2016). Such biases can influence the way individuals interpret the behavior (Gilliam et al., 2016). In two recent studies, researchers evaluated the role implicit biases and stereotypes have in teachers' disproportionate use of exclusionary practices (Gilliam, et al., 2016; Okonofua & Eberhardt, 2015). Gilliam and colleagues (2016) determined that boys, Black boys, and Black students in general were observed more closely than other students by early education staff and many of the white teachers participating in the study had lower expectations for the performance of the Black students. Okonofua and Eberhardt (2015) found that teachers were more troubled by black students who were misbehaving than white students. In addition, the teachers were also more likely to identify the Black students as "troublemakers" despite having demonstrated the same problem behaviors as the white students (Okonofua & Eberhardt, 2015). The aforementioned studies contribute to the body of research that has highlighted the role implicit biases and stereotypes play in the disparate impact of discipline.

### **Removal of Punitive Discipline Policies**

As previously mentioned, punitive discipline policies result in the disproportionate exclusion of students of low socio-economic status, diverse ethnic backgrounds, and disabilities. Such studies have evidenced that students with disabilities are removed from the classroom twice as often as their peers without disabilities (Losen & Gillespie, 2012). The over-reliance on punitive measures and removal of students for problem behaviors which infringes on their right to FAPE has caused education stakeholders to petition for the removal of punitive policies that result in exclusion of students (Division for Early Childhood of the Council for Exceptional Children, 2017).

In a recent position statement regarding the use of punitive practices, the Division for Early Childhood of the Council of Exceptional Children (DEC) (2017) called for educational systems to address challenging behavior of early education students with positive and preventative strategies. The division asserts that adults ultimately decide what behaviors are deemed as “challenging” in the classroom and an adult’s culture and biases can impact their reliance and use of punitive practices (Division for Early Childhood of the Council for Exceptional Children, 2017). Because punitive practices do not teach new skills and result in negative outcomes for students, DEC (2017) has called for the use of culturally responsive and tiered evidence-based interventions to address challenging behaviors. DEC (2017) highlights the need for additional professional development and training to support schools and policy makers in the implementation of positive approaches to discipline that work to eliminate the use of suspension and expulsion when addressing challenging behavior.

### **Positive Behavior Strategies**

As described above, researchers suggest that training and implementation of non-punitive strategies may result in decreased rates of disciplinary referrals (Skiba, Peterson, & Williams, 1997; Simonsen, Sugai, & Negron, 2008). The United States Office of Special Education (OSEP) recently released a guide to aid teachers and administrators in the selection and implementation of non-punitive, evidence-based behavior management strategies (Simonsen, Freeman, Goodman, Mitchell, Swain-Bradway, Flannery, Sugai, George, & Putman, 2015). Researchers identified four core features associated with the implementation of such positive approaches to classroom management: foundations, prevention, response, and data collection (Simonsen et al., 2015). Foundations refers to arrangement of the classroom environment, the routines within the environment, and the classroom expectations for student behavior. The

prevention feature encompasses active supervision, high rates of opportunity for students to respond, use of behavior specific praise to acknowledge target behavior, and the delivery of prompts for demonstration of target behaviors. The response feature includes providing brief statements to correct inappropriate behaviors, ignoring inappropriate behavior while rewarding target behaviors after their display, and use of other tools, such as, gathering data to determine why inappropriate behaviors occur. The final feature, data systems, promotes the role of data in the decision making process by identifying data collection procedures to support teacher and administrators in data-based decision making. The procedures include, counting the number of times a behavior occurs, timing the duration of a problem behavior, recording the occurrence of a behavior during a specific interval of time, and finally identifying what occurs immediately before the demonstration of inappropriate behavior and what occurs after the demonstration of such behavior. By identifying evidence-based behavior management strategies and providing teachers self-evaluation form to reflect on their practice, researchers aim to disseminate key components of proactive policies and procedures that may ultimately result in reducing disproportionate discipline rates.

As features of effective classroom management policies are distinguished, researchers must continue to identify specific interventions that reduce the disparate impact of discipline. One intervention that has demonstrated increases in on-task behavior and decreases in disruptive behaviors is Class-Wide Function-related Intervention Teams (CW-FIT) (Wills, Kamps, Fleming, & Hansen, 2016). CW-FIT encompasses many of the evidence-based practices (EBP) outlined by OSEP, such as, implementation of predictable classroom routines, identification of classroom expectations, active supervision of student behaviors, immediate and consistent feedback regarding students' behavior, use of pre-corrects and prompts, correction of

misbehavior, minimize reward of problem behaviors, and collection of data to assess disruptive behaviors. Teachers have regarded the intervention as socially valid and have been able to implement the intervention with fidelity (Wills et al., 2016).

Despite the positive implications of CW-FIT, to date, the intervention and associated outcomes have been measured and reported in only one adolescent classroom setting (Conklin, Kamps, & Wills, 2017). Although the intervention resulted in increases in on-task behavior and decreases in disruptive behaviors, it is uncertain if the same outcomes would be observed with diverse student populations. The identification of interventions which positively impact adolescent student behavior and demonstrate social validity is key in order to reduce over-reliance on removal.

### **Purpose**

The purpose of this research is to evaluate the outcomes associated with the implementation of Class-Wide Function-related Intervention Teams as a Two Tier intervention with diverse adolescent student populations. This study seeks to determine if the implementation of CW-FIT will reduce student problem behaviors, increase on-task behavior, reduce reprimand statements made by the teacher, and increase teacher praise statements. In addition to the impact on both student and teacher behavior, the researcher will measure teacher fidelity of implementation. Finally, social validity of the intervention will be investigated by assessing teacher and student preference for the intervention and sustained use of the intervention.

To address the gap in research literature related to the use of CW-FIT, this study will evaluate the impact of the strategy when implemented in adolescent classroom settings. This study will extend current literature which has primarily focused on the implementation of such intervention in elementary school settings. By identifying an intervention that reduces problem

behaviors and demonstrates social validity in adolescent classrooms, this study seeks to bridge the existing gap between research and practice. The findings of this research will have key implications for teachers, school administrators, and policy makers in that a suitable intervention which has demonstrated sustained use and reduces the disparate impact of discipline has yet to be identified.

### **Research Questions**

1. What are the effects of CW-FIT intervention on the on-task behavior of adolescent students from diverse ethnic backgrounds and adolescent students with disabilities in inclusive settings?
2. What are the effects of the CW-FIT intervention on on-task behavior of target students demonstrating high rates of problem behavior?
3. What are the effects of the CW-FIT intervention on teacher behavior specific praise and reprimand statements?
4. Will teacher and student participants prefer the implementation of the CW-FIT intervention over typical classroom management strategies?

To answer these questions, three classroom teachers implemented CW-FIT in their classrooms. The classrooms were comprised of students from diverse ethnic backgrounds and varying abilities and disabilities. Data were collected on (a) classroom on-task behavior, (b) target student on-task behaviors, (c) teacher praise statements, and (d) teacher reprimand statements. In addition, all students and teachers participating in the intervention were asked to complete social validity surveys.



## CHAPTER TWO

### **Review of the Literature**

#### **Introduction**

This chapter presents the literature and what is known of the conceptual framework previously described. An overview of classroom management is first presented. Second, the use of punitive behavior management strategies and associated outcomes is discussed. Pre-service teacher training and its possible contribution to over-reliance on punitive strategies is then presented. Next, the review of positive behavior management strategies and associated outcomes is described. Finally, the Class-Wide Function-related Intervention Teams literature and associated gaps is presented.

#### **Classroom Management**

Classroom management refers to the policies and procedures implemented by teachers to create an environment that promotes academic achievement and social-emotional growth of students (Kopershoek, Harms, de Boer, van Kuijk, & Doolaard, 2016). The Individuals with Disabilities Education Act (IDEA) requires districts and schools to employ positive behavior support and interventions within their classroom management framework to meet the needs of diverse student populations (Gresham, McIntyre, Olson-Tinker, Dolstra, McLaughlin, Van, 2004). Positive behavior supports and interventions include evidence-based strategies that teach and/or reward student demonstration of appropriate behaviors. Such effective classroom management strategies that promote appropriate student behavior include: maximizing classroom structure and predictability; modeling, teaching, and reinforcing classroom expectations; engaging students in learning, acknowledging student display of correct behaviors;

and responding appropriately to problem behaviors (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008).

Researchers conducted a meta-analysis to determine the effects of different classroom management strategies on student outcomes (Kopershoek, Harms, de Boer, van Kujik, and Doolard, 2016). The researchers sought to identify the classroom management strategies and procedures that result in positive academic, behavioral, social-emotional, and motivational outcomes. The researchers conducted a systematic review of the literature published between 2003 and 2013 by searching terms, such as, classroom management, teaching strategies, student engagement, and classroom behavior. The researchers included studies that assessed the implementation of whole class interventions and measured the outcomes of student behavior or academic achievement. Forty-seven classroom management studies met criteria for inclusion in the review. By comparing the described student outcomes associated with each respective study, the researchers determined that the implementation of evidence-based behavior management strategies that aim to change students' behavior, encourage social-emotional development, and improve teacher behavior resulted in positive academic, behavioral, motivational, and social-emotional effects for students. Because of the associated outcomes, Kopershoek and colleagues (2016) have strongly encouraged schools to support teachers in implementing evidence-based behavior management strategies. However, a great disconnect between evidence-based behavior management practices and the legislative mandates to implement such practices continues to be documented as teachers, schools, and districts often rely on punitive behavior management strategies (Mallett, 2016).

## **Punitive Behavior Management**

Districts and teachers often use punitive measures and zero-tolerance policies within their respective schools to manage student behavior (Mallett, 2016; Skiba, Peterson, & Williams, 1997). Punitive strategies, such as, office referrals, detentions, suspension and expulsions are currently implemented with great frequency (Welch & Payne, 2010). An estimated 75-90% of schools enforce zero-tolerance policies that result in removal from school for violent, unsafe, and abhorrent behavior (Mallett, 2016). Punitive, reactive measures associated with zero-tolerance policies are also used to address minor misbehaviors, such as, speaking without permission, becoming distracted, and noncompliance (Allday, 2011). Such exclusionary tactics result in a loss of instructional time for students and impact students who require the most instructional support (Gregory, Skiba, & Noguera, 2010).

When implementing punitive behavior management strategies, schools often do not take into consideration why the behavior occurred or strategies that may mitigate the occurrence of the behavior as required by IDEA, but instead seek to punish the demonstration of problem behaviors through the implementation of zero-tolerance policies (Mallett, 2016). Such punitive behavior management policies are associated with negative outcomes for students, such as, decreased academic achievement, increased truancy, and increased risk of arrest (Arcia, 2006; Losen & Gillespie, 2012; Mallett, 2016; Monohan, VanDerHei, Bechtold, & Cauffman, 2014).

Arcia (2006) investigated the relationship between student suspension and academic achievement using a longitudinal retrospective analysis. To assess the relationship, the researcher matched students, of similar gender, race, participation in free-reduced lunch, and English language proficiency, who were suspended with students who were not suspended. The researcher conducted two analyses over the duration of the study. The first analysis compared

the reading achievement scores of suspended and non-suspended students. In the second analysis, the researcher compared the reading achievement of students, grades four through seven, who were suspended in year two or year three with students who were not suspended over the three year time frame. Finally, the researcher collected data on ninth grade enrollment status. To assess the difference between groups, the researcher used an ANOVA and Tukey's honestly significant difference. The results of the study indicated that middle school suspension rates were higher than elementary suspension rates and continued to rise into high school. The study also found that students with higher suspension rates demonstrated lower reading achievement scores. Finally, students who were suspended most often dropped out of school at higher rates than their peers. The author concluded that suspension is used with greater frequency in middle school and high school settings, suspension results in reduced academic achievement, and higher drop out rates for students.

In a longitudinal study, Monohan and colleagues (2014) assessed the link between arrest and school absence due to expulsion or suspension and truancy. The researchers interviewed 1,354 children aged 14 to 17 to identify if the participants were suspended, expelled, or truant during the same months in which the participants were arrested. Upon parental consent for participation in the study, the participants were interviewed immediately and follow up interviews were conducted at six-month intervals thereafter (Monohan et al., 2014). The researchers found that during the months in which the students were expelled or suspended from school, they were more likely to be arrested than the months they were not subject to exclusionary tactics. This study extends the research to suggest a link between exclusionary school discipline tactics and juvenile arrest.

It is evident that the reliance on punitive behavior management strategies results in negative outcomes for students. Students who are excluded from classrooms for problem behaviors demonstrate reduced academic achievement, higher dropout rates, and higher rates of arrests. Despite the negative outcomes associated with punitive behavior management, schools and districts continue to implement such exclusionary tactics and are doing so with greater frequency. There is some evidence to suggest that this over-reliance on punitive measures for managing classroom behavior may be due to inadequate teacher preparation (Oliver & Reschley, 2010; Flower, McKenna, & Haring, 2016).

### **Pre-Service Teacher Training**

Teachers receive little instruction in antecedent or positive behavior management strategies and, thus, may over-rely on punitive or exclusionary tactics (Oliver & Reschley, 2010; Flower, McKenna, & Haring, 2016). As a result of inadequate instruction and preparation, educators are likely unable to meet their students' diverse needs (Oliver & Reschley, 2010). Instead, teachers rely on strategies that ultimately result in the removal of students who demonstrate problem behaviors.

Researchers reviewed course syllabi associated with 26 different special education teacher preparation programs from a Midwestern state (Oliver & Reschley, 2010). Oliver & Reschley (2010) report that pre-service special education teachers are provided very little preparation in preventative or antecedent behavioral strategies aimed to minimize behavioral disruptions and teach appropriate behaviors. The researchers assessed the course syllabi using an Innovative Configuration Rubric with a five-point scale to rate the following seven components of classroom management: structured environment, active supervision of students and student engagement, creation of school-wide behavior expectations, creation of classroom rules,

classroom routines, encouragement of appropriate behavior, and strategies for reducing behaviors. The results of the study found that pre-service teachers are not receiving adequate instruction to support the implementation of effective and evidence-based classroom management routines (Oliver & Reschley, 2010).

Flower, McKenna, and Haring (2016) also found inconsistencies in behavior and classroom management training for pre-service teachers. The researchers surveyed 74 teacher preparation programs in a southwestern state with a 72-item checklist in which program directors indicated with a yes or no response whether a specific classroom or behavior management tool was included in program curricula. Items on the survey included strategies to reduce problem behaviors, encourage appropriate behaviors, assess problem behaviors, and implement universal behavior management strategies. Respondents were also asked to indicate the course in which such instruction took place and whether or not the course was required for certification. The researchers analyzed the survey data using the Excel frequency count feature and found that 87% of schools teach universal management procedures, less than 60% teach strategies to increase appropriate behavior, 52% cover strategies to reduce problem behaviors, and 54% teach behavioral assessment techniques. Although there is evidence to suggest that pre-service teachers receive training in evidence-based behavior management strategies, the data indicated that teachers certified through special education programs receive the most training in evidence-based behavior management strategies while teachers who are enrolled in general education alternative or college certification programs receive the least amount of training (Flower et al., 2016).

Although Flower and colleagues (2016) suggest that special education pre-service teachers may receive the necessary training to implement evidence-based classroom and

behavior management strategies, as previously mentioned, today's general education classrooms are comprised of an unprecedented degree of diversity (Kena et al., 2015). White students represent half of public school K-12 enrollment with the other half of the student population represented by African American, Hispanic, Asian, Native American, and various other ethnic backgrounds (Kena et al., 2015). English Language Learners comprise approximately 9.2% of public school enrollment (Kena et al., 2015). Students with disabilities make up 13% of public school enrollment (Kena et al., 2015).

### **Exclusion of Diverse Student Populations**

Recent studies have demonstrated that students from diverse backgrounds, lower socioeconomic status, and with disabilities are at greater risk for exclusion (Losen & Gillespie, 2012; Achilles, McLaughlin, Croninger, 2007). Achilles and colleagues (2007) investigated the sociocultural characteristics of students diagnosed with Emotional-Behavioral Disorder (EBD), Learning Disabilities (LD), or other health impairments (OHI) to identify the ecological factors of children who are most often removed from schools for disciplinary measures. According to the researchers, students with EBD, LD, and OHI are associated with the highest levels of suspensions and expulsions. The researchers conducted two logistical regressions with the data of 1824 male and female participants included in the study. The students whose ages ranged from 7-14 and ethnicities included Caucasian, African-American, and Hispanic were diagnosed with EBD, LD, or OHI. The participants were selected from the Special Education Elementary Longitudinal Study (SEELS) dataset based on their diagnosis. Demographics and characteristic data were provided by local education agencies. Parent/caregiver questionnaire responses provided data for the sociological characteristics of the children, such as, past exclusions, living arrangements, head of household education, student mobility, school setting, level of parental

involvement in school, parental satisfaction with school, student/teacher respect, discipline, school's response to child's needs, extracurricular activities, age when children started to demonstrate characteristics of disability and whether or not children received early intervention services. The parent responses were collected via a 45 minute phone call. The researchers conducted logistical regressions with all of the disability groups combined and then separately with each disability group measuring the impact of the ecological factors on exclusion. The results of the regression suggest that students with EBD or OHI/ADHD were more likely to be excluded than their peers with LD. African American and Hispanic children were also more likely to be excluded as were males and older participants. Researchers also found a student's socioeconomic status was a significant predictor of exclusion. Additionally, highly mobile students and students of families in an urban setting or in which parents shared dissatisfaction with the school were also more likely to be removed from the classroom. The results of the study demonstrate the disparity in application of exclusive disciplinary measures on students with EBD and ADHD as well as the increased likelihood of exclusion for students with EBD, ADHD, and LD from a minority background and lower socioeconomic status. These results support the notion of disproportionality in the application of exclusion.

In a follow up study, Bowman-Perrott and colleagues (2013) assessed patterns of exclusion for students with EBD, LD, or ADHD over a six year period. Researchers sought to identify if one exclusion increased the odds of additional exclusions, the disability category associated with the highest rate of exclusion, and the impact student demographics, characteristics of the household, academic and social skills, and school characteristics have on exclusionary practices. The participant sample included 2,597 students, whose ages ranged from 6-12 at the onset of the study. The participants had a diagnosis of EBD, LD, or ADHD. The



dependent variable, student exclusionary data, was collected in three waves between 1999 and 2005. The data were collected through parent interview in which parents reported whether their child had been suspended and/or expelled in the previous school. Researchers also collected data on student demographics, family characteristics, student social and academic skills, and the characteristics of the schools in order to render predictor variables for exclusion. The researchers used Structural Equation Modeling to analyze the relationship between student exclusion rates and the above described predictor variables. After examining the variables, researchers determined that students who were excluded during the first wave of data collection were more likely to be excluded in subsequent waves. In fact, students with learning disabilities and ADHD were significantly more likely to be excluded in Wave 3 after having been excluded in Wave 1. All three disability groups were more likely to be excluded in Wave 2 after having been excluded in Wave 1. The researchers also found that students who were African-American and male had a much higher probability of exclusion in Wave 1 and Wave 2 than their peers. Although much of the data for the study was gathered through parent self-report, the findings extend prior research documenting the disproportionality of application of exclusionary tactics. Specifically, African-American, male, students with EBD, ADHD, and LD run a much higher risk of being excluded from schools.

More recently, Sullivan and colleagues (2013) assessed predictors of exclusion using descriptive analyses and multilevel modeling to analyze the risk of suspension by disability, the impact of students' demographics on suspension, and the role school characteristics play in suspension risk for students with disabilities. Participants included 2,750 students with disabilities from 39 mid-western schools. The dependent variable in the study was the number of out-of-school suspensions for the students. The researchers also collected data on student

gender, race, disability, language proficiency, socio-economic status, and parent education level. The descriptive analyses suggested that 19.5% of students with disabilities are suspended at least once, African American students with disabilities were three times more likely to be suspended than their white peers. Students with emotional disturbances were at highest risk of being suspended, followed by students with other health impairments, while students with speech-language impairments were least likely to be suspended. The multilevel modeling analyses demonstrated that gender and race had significant effects on suspension and students from lower socio-economic backgrounds were also more likely to be suspended. The data from this study extended previous research finding and further demonstrate the disproportionate use of exclusion.

As evidenced above, teachers may rely on implementation of punitive management strategies, such as, exclusion, to manage classroom behavior. Given that exclusionary tactics result in negative outcomes for students and are disproportionately applied to students with disabilities, student from minority backgrounds, and students of lower socio-economic status, research is necessary to identify practices that lead to more favorable outcomes for students and do not result in disproportionate application of exclusionary tactics to marginalized student populations. Researchers must also assess how to support teachers in implementing such practices with fidelity, which has been linked to positive outcomes for students (Farkas, Simonsen, Migdole, Donovan, Clemens, & Cicchese, 2012).

### **Positive Behavior Management Strategies**

Extensive empirical evidence supports the implementation of Positive Behavior Interventions and Supports (PBS). As described by Dunlap and colleagues (2008), PBS involves the implementation of Applied Behavior Analysis (ABA) strategies to manage classroom behaviors.

The evidence-based strategies associated with PBS analyze the function of behavior, promote behavior change, control behavior antecedents, teach new skills, reinforce the demonstration of appropriate behavior, and promote proactive approaches while minimizing punitive or aversive strategies (Dunlap et al., 2008).

Applying the features of PBS to an entire school is known as School-Wide Positive Behavior Supports (SWPBS) (Sugai & Horner, 2006). SWPBS includes dimensions of applied behavior analytical research to create a behavior management system that emphasizes the individual in order to prevent the occurrence of problem behaviors (Sugai & Horner, 2006). SWPBS uses a three tier system in which the first tier of evidence-based strategies are applied to the entire student population, the second tier of strategies are applied to a smaller group of students who require additional behavior supports (Sugai & Horner, 2006). The third and final tier of SWPBS involves individualized, function-based intervention and support (Sugai & Horner, 2006). Abundant research exists to demonstrate the positive effects of SWPBS in elementary schools (Caldarella, Shatzer, Gray, Young, & Young, 2011). More recently, research has sought to determine the impact of SWPBS on adolescent students and results have been quite favorable. (Nocera, Whitbread, Nocera, 2014; Caldarella et al., 2011)

In one such study, researchers assessed the impact of SWPBS on school climate and student outcomes (Caldarella et al., 2011). Two western middle schools, with students aged 11 to 13, participated in the study. To measure the impact of the SWPBS on school climate and student outcomes, the researchers used a convenience sample method in which one school received treatment and the other school continued to implement their current behavior management system. At the onset of the study, the researchers facilitated the creation of SWPBS team in the treatment school, who then created school-wide target behavior expectations. Classroom

teachers taught the target behaviors to students. When students displayed the target behaviors, praise notes were given to individual students and were then placed in a weekly drawing for prizes. To implement a two-tier system, the researchers conducted screenings on all students in the treatment school using the Systematic Screening for Behavior Disorders to identify students who were at risk for developing behavior issues and provided behavior skill training for such students. During each of the four years of treatment in both the treatment and control schools, the researchers collected data on school climate and student GPAs, office referrals, tardiness, and unexcused absences. The results of the study indicated that the implementation of the SWPBS system had a significant positive impact on increasing school climate while decreasing adolescent student office referrals, tardiness, and unexcused absences in the school receiving the two-tier SWPBS treatment. Despite the positive implications for adolescent student populations, the researchers failed to assess fidelity of implementation throughout treatment. Additionally, the time and support required to implement a SWPBS system may render schools with fewer resources and personnel incapable of implementing a behavior management system to this degree. It is also worth noting that the implementation of SWPBS did not eliminate the use of punitive behavior management strategies only decreased the frequency of application of such strategies.

In another study, researchers assessed the impact of SWPBS on middle level students' behavior and academic outcomes in a mixed methods research design (Nocera, Whitbread, & Nocera, 2014). A three-tier SWPBS system was implemented in a middle school in Connecticut. The first tier consisted of rewards system in which student demonstration of target behavior was recognized with a certificate that could later be exchanged for a preferred reward. To implement the second tier of the system, teachers learned strategies to diminish "conflict cycles" which

often resulted in office referrals. The third tier included a Functional Behavior Assessment and Behavior Intervention Plan. Approximately 300 students ages 11-13 participated in the research over the course of three full academic years. The researchers collected data on the total number of office referrals, the average number of office referrals per day, the number of student referred to the office, the number of suspensions, the number of days served in association with suspensions, and the number of special education students suspended. The results of the study demonstrated a decrease in student problem behaviors, office referrals, and suspensions as well as an increase in reading scores over the course of the study.

Despite the significant decrease in office referrals, suspensions, and problem behaviors, similar to prior research, the use of such punitive measures was not eliminated in the aforementioned studies. Research indicates that when such measures are used they most often result in the removal of African American students with EBD and OHI. Thus, researchers have recently sought to identify the impact of SWPBS on such populations. Farkas and colleagues (2012) assessed the impact of a Tier One SWPBS intervention in a therapeutic school for students, grades 5-12. The researchers evaluated if staff were able to implement SWPBS with fidelity, the impact of the intervention on student behavior, and the social validity of the intervention. The researchers assessed the impact of the intervention with a single-subject case study AB design. Researchers also collected data on fidelity of implementation and social validity as scored by staff and students. Due to referrals and transitions into public school or other learning environments, the number of participants ranged from 38-50 during the school year. The mean age of the participants was 15 years and 6 months, range 11-19. Approximately, 73% of students were Caucasian, 15% were Hispanic, and 11.34% were African American. Nearly three-fourths of students were diagnosed with ED; 19% were diagnosed with

OHI, and 8% were diagnosed with ADHD. To begin implementation of the intervention, the staff selected four outcomes: decrease discipline referrals, increase percentage of students demonstrating appropriate behavior, teachers maintain a 4:1 praise, reprimand ratio, and the intervention implemented with at least 80% fidelity. Data in relation to such outcomes were collected by staff and reviewed on a weekly basis. If the aforementioned outcomes were not being met, staff adjusted the intervention. Staff implemented specific SWPBS intervention strategies: positively stated expectations, target behavior lessons plan, student recognition ticket procedures, point systems, tickets for positive behavior, class-wide group contingency, recognition of students, and a time-out procedure. In addition, a SWPS team and a student SWPBS team were created to evaluate the impact of the intervention and adjust the intervention procedures if necessary. A communication system, professional development, and a staff recognition system were also put into place. To assess fidelity, the researchers interviewed and surveyed students, staff, and administration, analyzed permanent products, and conducted observations of SWPBS lesson. Student outcomes were measured by the levels of appropriate behavior and the number of office or detention referrals. Staff and students completed surveys and rated intervention procedures on a 4-point likert scale to render a social validity measure. The data suggest that staff were able to implement the intervention with fidelity, appropriate student behavior increased while inappropriate behavior decreased, and both staff and students found the intervention to be socially valid. Despite the positive implications of the study, many limitations exist which impact the generalizability of the findings. The single-subject case study design is not an experimental design and does not therefore demonstrate experimental effect or a causal relationship. Future experimental studies should be conducted to determine if the same results are observed and a causal relationship between the independent and dependent variables

exists. Additionally, the researchers did not report the impact of the intervention on individual students. Thus, it is impossible to determine with whom the intervention is effective.

Tobin and Vincent (2011) further investigated the impact of SWPBS on the disproportionate use of exclusionary discipline. Specifically, the researchers sought to determine if SWPBS was associated with an overall decrease in exclusion of students and identify the intervention associated with SWPBS that has the greatest impact on expulsion rates. Additionally, researchers assessed if students from all ethnicities benefitted from the implementation of SWPBS and if the exclusion of students with disabilities was equal across all ethnicities when schools implement SWPBS. To measure implementation of SWPBS, researchers collected responses with the Effective Behavior Support survey which measures the implementation of four domains of SWPBS (school-wide, classroom, non-classroom, individual student). The survey was completed online and consisted of 46 items in which respondents rated the implementation of different SWPBS interventions in relation to the aforementioned domains as, “in place, partially in place, not in place.” To identify the number and characteristics of students excluded from the classroom, researchers collected data from the schools’ School Wide Information System (SWIS). When students are suspended or expelled from school, staff from the sample schools record the occurrences in the SWIS. The recordings often included demographic information. When such information was not included in the SWIS, the researchers used ethnic information from the National Center on Educational Statistics. A total of seventy-seven elementary, middle schools, high schools, and alternative schools were included in the study. Elementary schools and middle schools accounted for nearly 80% of the sample population. To determine if the implementation of SWPBS decreases exclusion of students, the researchers calculated the rate of exclusion across two school years for each school.

The overall sample demonstrated decreases in use of exclusive discipline from Time 1 to Time 2. To identify the domain of SWPBS that had the greatest impact on exclusive discipline, the researchers conducted multiple linear regression analyses with each domain evaluated with the EBS survey. The analyses showed two significant outcomes: first, the implementation of SWPBS resulted in decreased suspensions in elementary schools when such schools implemented SWPBS in the classroom setting; second, when SWPBS was implemented in non-classroom settings a decrease in exclusions in high schools was observed. However, implementation of the domains demonstrated no significant impact on the suspension rate of students in middle school classrooms. To assess the impact of SWPBS on disproportionate use of exclusion, the researchers calculated the number of days students from different ethnic backgrounds and students with minorities were suspended. From such calculations, the researchers determined that SWPBS did not result in equal exclusion of all ethnicities, specifically, African American students with and without disabilities continue to be disproportionately excluded with the implementation of SWPBS. Because the use of SWPBS does not eliminate disproportionate use of exclusionary discipline, researchers must continue to explore positive behavior interventions to identify strategies that have the greatest impact on the behavior of students with disabilities and students from diverse ethnic backgrounds.

**Self-Management.** One such positive behavior intervention is self-management. Self-management includes implementation of any of the following: students setting personal behavior goals, monitoring one's own behavior, evaluating and recording one's own behavior, reinforcing one's own behavior, and self-charting (Briesch and Chafouleas, 2009). Briesch and Chafouleas (2009) suggest the most popular of the aforementioned self-management strategies is self-monitoring. Self-monitoring is a strategy in which students observe and record their own



behavior. To implement the strategy, teachers signal the end of the interval to students and students assess and record their behavior (Briesch & Chafouleas, 2009).

Smith and Sugai (2000) assessed the implementation of a self-management strategy with a 13 year old boy who met diagnostic criteria for EBD. The student, who primarily received instruction in a self-contained classroom setting, did not demonstrate any symptoms to suggest a learning disability. Prior to implementation of the intervention, the researchers conducted a functional behavior assessment and hypothesized that the problem behaviors displayed by the student were attention seeking. From this hypothesis, the researcher identified specific skills or target behaviors for the student to demonstrate during treatment phases. The researchers evaluated the impact of the intervention with an ABAB design. Data were collected on on-task and talking out behaviors across all phases. During phase one and two of baseline, the teacher maintained typical classroom management procedures. Treatment phases one and two consisted of implementation of a self-management strategy in which the student recorded his display of the target behaviors: work completion, ability to remain calm when a peer made a negative comment, and use of hand-raising to respond to a teacher directed question. To teach the student the target behaviors, the primary researcher conducted three 30-minute training sessions with the student in which the target behaviors were described and role-played. During the initial stages of treatment, the primary researcher provided prompts throughout the instructional period to shape the student's behavior. Results of the study indicated that the function-based self-management strategy effectively increased the on-task behavior for the student while simultaneously decreasing off-task behaviors.

Barry and Messer (2003) also evaluated the implementation of a self-management strategy with five adolescent students using a multiple baseline across participants with withdrawal

research design, ABABAB. Across all phases, data were collected over a two-hour session. The teacher or teacher's aide recorded on-task behavior, disruptive behaviors, and academic performance for all five students using partial-interval recording for disruptive behaviors, whole interval recording for on-task behaviors, and a point system to evaluate academic performance. Prior to the implementation of treatment, the teacher taught each of the students how to use the self-management intervention. The target behaviors were defined and described by both the teacher and student in individual 20-minute conferences. The teacher set goals for the students and students identified highly-preferred reinforcers that would be accessible if students met criteria. Finally, the self-recording procedures associated with the intervention were modeled and prompted in order to train students how to record their own behavior during treatment phases. The results of the study indicated that the self-management strategy increased on-task behaviors, decreased disruptive behaviors, and increased academic performance for all students receiving treatment.

Despite the positive implications associated with the aforementioned studies, effective implementation of self-management strategies requires substantial time and effort. Thus, such interventions may not be suitable for inclusion classrooms with large student populations demonstrating problem behaviors. Thus, self-management strategies may be most useful as a tier two intervention targeting specific students whose problem behaviors are not reduced with the implementation of a tier one behavior intervention. Future research is necessary to determine not only an effective tier one behavior management strategy, but also the conditions under which self-management should be implemented to have the greatest impact on student outcomes.

**Group Contingencies.** One such positive behavior strategy that has demonstrated significant impact on student classroom behavior and can be readily applied to a large classroom

setting is group contingencies. A group contingency is an evidence-based strategy that demonstrates many positive outcomes for students and teachers, such as, increasing student on-task behavior, increasing proactive teacher management strategies, and decreasing student off-task behaviors or problem behaviors (Maggin, Johnson, Chafouleas, Ruberto, & Berggren, 2012). After a review of the group contingency literature base, Maggin and colleagues (2012) suggest that enough empirical evidence exists to support the implementation of group contingencies as an evidence-based practice.

When implementing group contingencies, teachers break students up into teams or groups. Teachers award points to groups of students after the demonstration of target behavior or absence of problem behaviors at scheduled intervals. If students consistently demonstrate target behaviors and meet predetermined criteria, students then receive access to highly-preferred items or activities immediately following the implementation of the group contingency. There are three types of group contingencies: interdependent, dependent, and independent (Hulac & Benson, 2010). An independent group contingency involves all members of the group being required to demonstrate appropriate behavior and each member receiving access to the reward individually after such demonstration while a dependent group contingency involves all members of the group receiving the reward after the demonstration of appropriate behavior by one or two members (Hulac & Benson, 2010). An interdependent group contingency requires all students demonstrate the appropriate behavior in order for all members to receive access to the reward (Hulac & Benson, 2010). Of the three types of group contingency, interdependent contingencies have been implemented the most with student populations (Maggin et al., 2012).

***Interdependent Group Contingencies.*** Interdependent group contingencies are preferred in most classroom settings because the contingency promotes student cooperation and does not

lead to social isolation of peers (Kelshaw-Levering, Sterling-Turner, Henry, & Skinner, 2000). The interdependent group contingency also proves to be advantageous when teachers are required to deliver the reward for the display of appropriate behavior because it is efficient to deliver the reward to a group of students as opposed to individual students (Kelshaw-Levering et al., 2000). As such, this method is most appropriate when selecting a contingency to implement in an inclusive classroom setting (Kelshaw-Levering et al., 2000; Maggin et al., 2012).

Christ and Christ (2006) evaluated the implementation of an interdependent group contingency in three high school classrooms using a concurrent multiple baseline design with reversals. The interdependent group contingency was implemented by three teachers in the high school setting. Teacher one implemented the intervention in a 10<sup>th</sup> grade biology class with 23 students, teacher two implemented the contingency in an English class with 27 ninth graders, and teacher three implemented the intervention with 32 students in a ninth grade science class. During baseline and withdrawal phases, teachers implemented their usual classroom management strategies. Treatment phases consisted of teachers awarding a point to students on a digital score-keeping board for each two-minute interval of instruction that was not interrupted by problem behaviors. At the end of the instructional phase if students were able to earn 17 points throughout the 30-minute instructional phase, they had access to free-time as a contingent reward. The researchers hypothesized the group contingency would result in a decrease in problem behaviors and an increase in active learning behaviors. To assess the impact of the intervention, researchers recorded teacher corrections of disruptive behavior and student demonstration of disruptive verbal behavior using a partial-interval time sampling procedure on 10-second intervals. Researchers also recorded teacher directed instruction and student demonstration of active engagement behaviors using a momentary time sampling procedure with

15-second intervals. Although the results of the study demonstrated a decrease in disruptive behaviors and an increase in engaged behaviors, teacher correction of disruptive behavior and student demonstration of disruptive verbal behavior were not eliminated. Additionally, specific demographic characteristics of the target populations were not reported. Thus, it is impossible to identify if the implementation of the interdependent group contingency resulted in a decrease in disproportionate disciplinary practices.

***Good Behavior Game.*** One interdependent group contingency that has demonstrated a significant impact on behavior of students with disabilities and students from diverse ethnic backgrounds is the Good Behavior Game (GBG) (Flower, McKenna, Bunuan, Muething, & Vega, 2014). The GBG is a behavior management strategy that moves beyond the simple rewarding of points to students for demonstration of appropriate behavior. Instead, the GBG requires the teaching of appropriate behavior rules, breaking the class up into at least two teams of students, posting of behavior expectations, and awarding reinforcement to the groups after demonstration of appropriate behavior (Flower, McKenna, Bunuan, et al., 2014).

Implementation of the GBG has resulted in positive outcomes for students. After a review of 22 studies in which the GBG was implemented, researchers found that the intervention results in significant decreases in challenging classroom behaviors and continues to impact behaviors throughout intervention phases (Flower, McKenna, Bunuan, et al., 2014). Such studies have also demonstrated a positive impact on the behavior of students from diverse ethnic backgrounds and students with disabilities.

In a recent study, Pennington and McComas (2016) assessed the impact of the GBG on on-task behaviors of three eight year old Native American students. One student was identified as having an emotional and behavior disorder (EBD), and the other two students were at risk for

an EBD. To assess the impact of the GBG, the researchers recorded on-task behavior for the students using a 10-second momentary time sampling procedure across baseline and treatment phases in a multiple baseline design. During treatment phases, all students in the classroom were broken up into two teams, and teams were awarded points for the demonstration of target behaviors on 30-second intervals. At the end of the game, the team with the most points had access to the reward. Visual analysis of the data demonstrated that the GBG reduced variability and increased on-task behavior for all three students. The results of the study suggest that the GBG may effectively increase on-task behavior of elementary students with disabilities or from diverse ethnic backgrounds. However, several limitations exist. The researchers failed to collect follow up data to assess the social validity of the intervention. In addition, the small homogenous sample size limits generalization of the findings to diverse student populations, including, adolescent students.

Despite the positive outcomes associated with the aforementioned study, to date, only two studies have assessed the impact of the GBG on diverse adolescent student populations. In one such study, researchers assessed the impact of the GBG in a 9<sup>th</sup> grade history classroom in a New York high school (Kleinman & Saigh, 2011). The class included 26 students with an average age of approximately 15. Of the students, six were African American, 19 were Hispanic, and one did not report his or her ethnicity. Twenty-three of the students received free-reduced lunch. The procedures were implemented across six weeks in four phases. In the first week, researchers attended learning sessions in the classroom to allow students to adapt to their presence. The researchers then collected data during baseline, treatment phase I, a return to baseline, and treatment phase II in an ABAB reversal design. Each phase lasted one week. Researchers collected follow-up data three weeks after the conclusion of the second treatment

phase. The class was separated into two teams during the first baseline phase to collect data on problem behaviors and remained in those teams throughout the duration of the study. At the onset of treatment, the teacher described that students would be participating in a competition and had the opportunity to earn a daily reward and weekly reward. If students demonstrated problem behaviors during the competition, their behavior offenses would be recorded on the board and would negatively impact their teams' opportunity to have access to the daily and weekly rewards. The daily reward included of a piece of candy for the winning team, and a pizza party was given as a weekly reward to the winning team. The researchers collected data on off task behaviors, such as, verbal disruption, leaving one's seat, and aggressive disruption on 30-second intervals throughout the observational sessions. The results of the studied demonstrated a significant decrease in the percentage of off-task behaviors. Additionally, during the follow-up session, the teacher continued to implement the GBG and shared with researchers that he intended to implement the strategy during the next instructional year. The GBG effectively reduced off-task classroom behavior and demonstrated high social validity for both the teacher and the students.

In a more recent study, Flower, McKenna, Muething, Bryant, & Bryant (2014) implemented the GBG in two high school math classrooms in Texas. The students had various disabilities and demonstrated deficiencies in math. Most of the students were Hispanic and only 10% did not receive free-reduced lunch. The effect of the GBG was measured with an ABAB reversal design and a two week follow-up to assess maintenance of the intervention. Prior to the implementation of the GBG, the researchers trained the teacher in 30-minute sessions for the span of a week. During the training, the teacher created behavior expectations and learned how to share such expectations. The researchers also modeled the procedures associated with the

GBG. At the onset of the implementation of the GBG, the teacher taught the students the behavior expectations. The classes were divided into teams of three in classroom one and teams of four in classroom two. When a student was observed demonstrating a problem behavior, the teacher recorded a “foul” for the team. The team with the fewest fouls at the end of the instructional session would win the game and earn a prize and token which could be exchanged for a larger prize. In order to determine effective prizes, researchers conducted a preference assessment with the students. During the baseline and intervention phases, the researchers collected data on student off-task behavior using a one-minute momentary time sampling. The interval was scored as off-task if two-thirds of the class was engaging in off task behavior, ie., not attending to instruction nor completing assigned tasks. The study resulted in a decrease of off-task behavior in both classrooms. The decrease was observed in each of the intervention phases. However, at the two week follow-up, the teacher was no longer implementing the GBG. Although the results of the study demonstrated a diminishing effect on off-task behaviors, there were several limitations to the findings. Even though high social validity ratings demonstrated acceptability of the intervention, the teacher was no longer implementing the strategy during follow-up. This may have been due to fidelity remaining under 90% during the duration of the study as high fidelity has been linked to sustained implementation. Additionally, as cited in the study, consistent behavior expectations are key to effective classroom management and lower levels of fidelity demonstrate inconsistent expectations. Despite the teacher rating the intervention as acceptable and an observed decrease in off-task behaviors, the GBG may not be valid in adolescent settings as the study did not result in sustained implementation of the intervention.



To date, only one study assessing the value of the GBG with adolescent student populations has demonstrated positive outcomes for older students and has sustained implementation. As such, it is imperative that additional research be conducted to identify positive behavior management strategies that result in positive outcomes for students, demonstrate social validity for all those involved, and will ultimately lead to sustained implementation.

***Class-Wide Function-related Intervention Teams.*** To address the limitations of the GBG, research has more recently been aimed at assessing the implementation of Class-Wide Function-Related Intervention Teams (CW-FIT). CW-FIT includes implementation of an interdependent group contingency, the teaching of appropriate classroom behaviors, increased praise of student behaviors, and tier-two behavior supports through self-monitoring and/or help cards (Wills et al., 2016). The strategy works to eliminate the reinforcement contingencies associated with attention-seeking or escape maintained problem behaviors that are often observed in the classroom setting (Wills et al., 2014) while rewarding on-task or target behavior with points, items or activities, and behavior specific praise statements.

With the implementation of a two-tier behavior management system, CW-FIT has demonstrated positive outcomes for children and teachers in typical classroom settings (Kamps et al., 2015; Wills, Kamps, Fleming, & Hansen, 2016). The first tier involves the implementation of the interdependent group contingency in which students are broken up into teams and participate in a game or competition to earn points. The classroom teachers teach students the target classroom behaviors. During implementation of the intervention, a daily point criterion is set. Teams are rewarded with points for the demonstration of target behaviors at the end of variable intervals. If teams meet the set criterion, they have access to a preferred item or

activity at the end of the instructional session. Additionally, teachers increase the frequency of teacher vocalizations of behavior specific praise statements. Behavior specific praise has demonstrated positive effects on student classroom behavior across multiple studies and is widely acknowledged as an effective tool in a positive classroom management system (Allday, Hinkson-Lee, Hudson, Neilsen-Gattie, Kleinke, & Russel, 2012).

The second tier of the intervention uses a self-management technique in which students record points for themselves if they are demonstrating appropriate behaviors (Wills, Kamps, Hansen, Conklin, Bellinger, Neaderhiser, & Nsubuga, 2010). As described by Wills and colleagues (2009), the self-management system is indicated when the fidelity of implementation is maintained at approximately 80% and the target students continue to demonstrate problem behaviors. Tier two target students and other students selected at random are named “classroom leaders,” and are given a chart that remains on their desk. At the end of each interval in which points are awarded to the different groups, the classroom leaders also record whether they displayed the target behaviors (Wills et al., 2010).

Help cards are implemented as an additional tier two intervention with all students in the classroom. To implement this strategy, each student in the class is given a card with green on one side and yellow or red on the other. Green indicates that the student understands the assignment or activity and requires no additional instructional support. If a student requires help to complete the assignment, he or she will flip the card over to display the yellow or red color. This indicates to the teacher that the student has a question or needs assistance.

CW-FIT uses a differential reinforcement procedure to reward the demonstration of appropriate classroom behaviors and eliminate the maintaining consequences of attention-seeking and escape problem behaviors (Kamps et al., 2015; Wills et al., 2014; Wills et al., 2016).

Differential reinforcement is an Applied Behavior Analysis strategy in which target behaviors are reinforced and the reinforcing contingencies that maintain the problem behaviors are removed from the environment. In CW-FIT, replacement behaviors or target behaviors are taught to students and such behaviors are praised and rewarded throughout implementation. At the onset of CW-FIT, the teacher models the target behaviors and students have the opportunity to practice such behaviors. The teachers then award points and use positive praise statements to provide positive reinforcement for target behaviors. Additionally, students are taught to ignore inappropriate behaviors demonstrated by peers (Kamps et al, 2015).

As previously mentioned, CW-FIT has resulted in increases in on-task behavior, decreases in off-task behavior, and increases in teacher's praise statements. When assessing the impact of the intervention on kindergarten, second grade, and seventh grade student behaviors, Conklin (2010) found an increase in on task behaviors, such as, compliance, hand-raising, and a decrease in problem behaviors (out-of-seat and talking out) for all students with whom the intervention was implemented. In addition, the researcher observed an increase in teacher praise statements (Conklin, 2010). In order to promote fidelity of the intervention, specifically, the use of teacher praise statements, the researcher used a 10-minute "booster session" or meeting to discuss the drop in fidelity of implementation in association with vocalizing praise statements and saw an immediate increase in praise statements thereafter (Conklin, 2010).

The impact of the CW-FIT program as a tier two intervention was measured in six urban general education elementary classrooms that had a SWPBS program in place (Kamps, Wills, Heitzman-Powell, Laylin, Szoke, Petrillo, & Culley, 2011). The study was conducted with 107 students from culturally diverse backgrounds in grades kindergarten, first, fourth, and fifth (Kamps et al., 2011). The researchers collected data on group and target student on-task

behavior, target student problem behaviors, and teacher praise statements. Using two different reversal designs, ABAB in three classrooms and ABCBAB in one classroom, the researchers assessed the impact of the intervention from baseline (A) to intervention (B) to intervention with coaching session (C) then a return to baseline and/or intervention phases (Kamps et al., 2011). The results of the study demonstrated an increase in on-task behaviors for most students, an increase in teacher praise statements for all teachers, and a decrease in off-task behaviors for most students. However, a limitation of the study is that there were three students who still demonstrated problem behaviors, which suggests the need for an additional more individualized intervention. In addition, the researchers did not describe specific demographic characteristics of the target students but instead gave general percentages of the entire school population. Thus, additional research must be conducted to determine if the intervention impacts the behavior of the previously described marginalized student populations.

Wills, Iwaszuk, Kamps, and Shumate (2014) evaluated the impact of the CW-FIT intervention on teacher praise statements, teacher reprimands, on-task behavior, and off-task behaviors. The research was conducted in a first grade general education classroom with a high percentage of students qualifying for free-reduced lunch. The three target students, two of which were Hispanic, met criteria of at risk for an EBD according to the Systematic Screening for Behavior Disorders (SSBD). The target students also qualified for free-reduced lunch. The dependent variables were on-task behavior of all students, praise and reprimand statements made by the teacher, and the problem behaviors of the three target students. On-task behavior was measured across a twenty minute duration on a 30-second momentary time sampling across all phases. During the same twenty minute duration, teacher praise and reprimands were measured on a frequency basis. To collect data on the target students', separate observational sessions took

place in which the researcher recorded the frequency of on-task and off-task behavior for each of the target students. These observational sessions lasted ten minutes per student. Using a modified, non-concurrent multiple baseline design across time, the researchers assessed the impact of the intervention on the dependent variables. The researchers found the intervention increased teacher praise statements, decreased teacher reprimands, increased on-task behaviors for the entire classroom, and decreased off-task behaviors. In addition, the teacher was able to maintain an average of 96% fidelity of implementation throughout the intervention and reported that the intervention was easily implemented. Despite the positive outcomes associated with this study, the research design, non-concurrent multiple baseline does not demonstrate experimental control. Thus, the findings of this study are limited by the design chosen. In addition, research must be conducted to determine the impact of the intervention on different populations in order to determine the generalizability of the findings to students of different races, disabilities, and ages. The researchers also failed to collect follow-up data to assess sustained implementation of the intervention.

To address limitations of prior CW-FIT research, Caldarella and colleagues (2015) investigated the impact of the CW-FIT intervention with elementary students at risk for developing an EBD using a quasi-experimental non-equivalent control group design in which three classrooms were randomly assigned as treatment and two classrooms were randomly assigned as control (2015). Seventy-six students in kindergarten, first, and second grade participated in the study. To identify students at risk for developing an EBD, teachers completed the Systematic Screening for Behavior Disorders and rated students with the Social Skills Improvement System. Finally, the researchers conducted direct observation of the students and identified seventeen students at risk for developing an EBD. The researchers collected data on

teacher praise and reprimands, group on task behavior, student engagement, and disruptive student behavior using the Multi-Option Observation System for Experimental Studies (MOOSES) across baseline and treatment phases in all classrooms. To evaluate the impact of the intervention, the researchers collected descriptive and inferential statistics, including, Tau-U to measure the differences between baseline and treatment phases. The intervention resulted in a significant increase in the academic achievement of students at risk for EBD and an increase in the praise to reprimand ratio. A significant decrease in disruptive behaviors was also observed. The intervention, which was implemented with high fidelity, was also found to be socially valid for both teachers and students. Their findings extended prior research to suggest that the CW-FIT may effectively diminish problem behavior for students at risk for an EBD. Despite the implications, the researchers did not collect follow-up data to assess sustained implementation of the intervention. In addition, specific demographic characteristics of the target students was not provided. Thus, it is impossible to determine if the findings generalize to students from diverse ethnic backgrounds.

To build on previous findings and further assess the impact of the intervention on students at risk for EBD, Kamps, Conklin, and Wills (2015) assessed the implementation of the CW-FIT intervention with a tier two self-management component. The participants, whose ages ranged from six to nine years, received instruction in a first and fourth grade general education classroom; three were identified as African-American while one was Caucasian. A district coach was present to provide support to the teachers throughout implementation of the intervention in order to promote fidelity of implementation. The researchers evaluated the impact of the intervention with a reversal design, ABCAC, in which the A condition was baseline, the B condition involved the implementation of the CW-FIT intervention, and the C condition included

implementation of the CW-FIT with a self-management component. The researchers found that the implementation of the CW-FIT intervention demonstrated positive effects for the overall class in terms of demonstrating on task behavior; however, the same impacts were not observed for the target students who were at risk for an emotional or behavioral disorder until the implementation of the self-management condition occurred (Kamps, Conklin, & Wills, 2015). The tier two self-management condition demonstrated a need for a more targeted intervention for students demonstrating challenging behaviors (Kamps, Conklin, & Wills, 2015). Despite the positive implications of the study, the outcomes are not necessarily generalizable to upper grades or adolescent students and thus warrants additional investigation.

Kamps, Wills, Bannister, Heitzman-Powell, Kottwitz, Hansen, and Fleming (2015) conducted an additional study using a randomized experimental control group design with a block randomization process with seventeen elementary schools in an urban school setting. The schools were not implementing a SWPBS program at the time of the study. The schools were comprised of ethnically and culturally diverse populations with 37-79% receiving free/reduced lunch and 36-93% of minority status (Kamps, Wills, et al., 2015). The number of students enrolled in each school ranged from 161-684. The study lasted for four year with each school participating for only one year. The researchers collected data on group on-task behaviors using a 30-second momentary time sampling and the frequency of teacher praise statements, reprimand statements, and awarding of points. The researchers compared the control classrooms to the experimental classrooms by collecting data on the dependent variables across baseline, the treatment condition for the experimental classrooms implementing CW-FIT, and a baseline 2 for the control classrooms. The researchers calculated descriptive statistics and conducted General Linear Mixed Model analyses to assess the impact of the intervention on the dependent variables.

When comparing classrooms receiving treatment to those identified as control groups, the analyses demonstrated a significant increase in student on-task behavior and a significant increase in teacher praise statements for classrooms implementing the CW-FIT program.

Building on previous findings, a randomized study was conducted with the CW-FIT program that included the associated tier one and tier two intervention (Wills, Kamps, Fleming, & Hansen, 2016). To address limitations of prior research, in the current study, the researchers replicated established CW-FIT procedures and provided specific descriptions of the students' demographic characteristics. The research was conducted over the span of four years with seventeen elementary schools, each of which participated for only one year over the duration of the study. There were 313 total student participants, which included 46 target students in the experimental group and 34 students in the control group. All target students were nominated by teachers based on Stage 1 of the Systematic Screening of Behavior Disorders and a large majority of target students met the criteria for at risk on a Problem Behavior subscale, the Social Skills Rating System. Participating students were enrolled in grades K-6, had various disabilities, including, emotional disturbances, and learning disabilities, and more than 60% of students were from minority backgrounds and eligible for free-reduced lunch. The researchers collected data on on-task student behavior, student disruptive behavior, teacher praise, and teacher reprimand. Similar to prior CW-FIT research, observation data was collecting using MOOSES. On-task behavior was recorded as a duration count using MOOSES in which the on-task behavior toggle was activated until off-task behavior was observed for more than five seconds, at which time the off-task code would be toggled by the observer. Student disruptive behavior, teacher praise, and reprimands were recorded on frequency counts. To assess experimental effect, the researchers analyzed descriptive statistics and baseline equivalences



between participating groups. Additionally, the researchers conducted a three level General Linear Mixed Model analyses. According to the researchers, the aforementioned analyses indicated that the two tier CW-FIT program significantly increased on task behavior, decreased disruptive behaviors of student from minority backgrounds, students with disabilities, and students at risk for emotional or behavior disorders. The researchers also found the intervention increased teacher praise statements. In addition, teachers were able to implement the intervention with high fidelity and reported overall satisfaction with the intervention. The findings of this research further establishes CW-FIT as an effective program to reduce problem behaviors, increase appropriate classroom behaviors, and increase teacher praise statements in elementary schools with a large number of students with disabilities and from minority or disadvantaged backgrounds.

To further assess the impact of the CW-FIT intervention in a self-contained classroom setting, Weeden, Wills, Kottwitz, and Kamps (2016) implemented the intervention in a self-contained classroom with six elementary-aged children diagnosed EBD. The children's ages ranged from 6-9 years, and three of the children were from minority backgrounds. The researchers used an ABAB reversal design to assess the impact of the intervention on group on-task behavior and teacher praise, point awarding, and reprimand of behaviors. The withdrawal phases consisted of only one session at the request of the teacher implementing the intervention. During baseline and treatment phases, group on-task behaviors were recorded with a 30-second whole interval procedure, and teacher behaviors were recorded on a frequency basis. The data suggest that the implementation of the CW-FIT intervention with young students diagnosed with EBD results in increases in on task behavior and teacher praise while simultaneously decreasing teacher reprimands. In addition to the positive impact on student and teacher behavior, the

researchers reported high levels of teacher and student consumer satisfaction with the intervention. The findings of the current study also suggest high social validity of the intervention as the teacher continued implementation of the intervention beyond the research time period. Despite the positive outcomes demonstrated for both students and teachers, it is necessary to continue investigation of the CW-FIT intervention to determine if similar outcomes are observed with other student populations, including, adolescent students.

Although the CW-FIT intervention has demonstrated significant effects on increasing on-task behaviors, decreasing problem behaviors, and increasing teacher praise statements for students, with the exception of the final described study, researchers have not reported specific demographic information regarding the population, such as, ethnicity and disabilities present in the classroom (Conklin, 2010; Kamps, Conklin, & Wills, 2015). In addition, the CW-FIT strategy has been primarily implemented in elementary school settings. Thus, it is necessary to continue researching the behavior management strategy to assess the external validity of the intervention, specifically, if the intervention will demonstrate similar outcomes with adolescent student populations.

### **Conclusion**

Given that students with disabilities and students from diverse ethnic backgrounds are more often subject to disproportionate rates of exclusionary discipline, it is necessary to identify strategies that will result in positive outcomes for students and are readily implemented by educators. Because few studies have evaluated the impact of classroom management strategies on the behavior of adolescent students, it is essential that researchers continue to evaluate the impact of such methods. The purpose of this study was to evaluate the effects of the CW-FIT classroom management strategy on on-task behavior for students both class-wide and target

students identified as demonstrating high rates of problem behaviors. Additionally, the impact of the intervention on teacher praise and reprimand statements was evaluated.

## CHAPTER THREE

### Method

#### Introduction

The purpose of this study was to evaluate the impact of Class-Wide Function-related Intervention Teams on diverse adolescent student behaviors and teacher behaviors. This study sought to determine if implementation of the intervention will result in increases in student on-task behaviors, decreases in student off-task behaviors, increases in teacher praise statements, and decreases in teacher reprimand statements. Additionally, this study investigated teachers' ability to implement the intervention with fidelity, student and teacher satisfaction with the intervention, and sustained use of the intervention.

In order to evaluate the impact of the intervention, the researcher used a multiple baseline across conditions design to limit threats to internal and external validity. The intervention was implemented in three different classroom settings with functionally-equivalent student composition of adolescents from diverse ethnic backgrounds and with diverse abilities. Data were collected on four dependent variables (a) whole class on-task behavior, (b) target student on-task behavior, (c) teacher praise statements, and (d) teacher reprimands. To evaluate the extent to which students and teachers were satisfied with the use of the intervention as a classroom management strategy, participating students and teachers completed a social validity survey immediately at the conclusion of the study.

The following chapter describes the design of the study. It begins with a description of the participants and setting. Next, the research design, dependent variables, methods to promote validity of the research, and independent variables are defined. The general procedures of the research are then discussed. Finally, the methods of data collection and analysis are described.

## Participants

Before recruiting participants for the study, the primary researcher received approval to conduct the research from the University of Arkansas Institutional Review Board. The primary researcher then received approval to conduct the study from the target school district and contacted the principal of the target school to initiate recruiting of classroom teachers.

Four classrooms were initially selected for inclusion in the study according to the following inclusion criteria, (a) the teachers had no previous experience with implementing group contingencies to manage behaviors, (b) the student population included one or more minority students who demonstrate high rates of problem behavior, (c) the student population also included one or more students with a disability who, according to teacher report, demonstrate high rates of problem behavior, (d) parents of students in classroom population whose behavior was recorded consented to their child's participation in the study, and (e) all teachers volunteered for participation in the study. The independent variable was introduced in three of the four participating classrooms due to time constraints.

Participants were adolescent students, ages 12-14. The students attended a middle school, grades 6-7, in inclusion and co-taught classroom settings with 22-28 students in each classroom. The demographic characteristics of the school population are presented in Table 1. Across the entire school population, the average percentage of minority students was approximately 70%, of that 46% were Hispanic and 18% were Pacific Islander. The majority of the school population was represented by students from low socio-economic status as 84% were eligible for free or reduced lunch. In addition, 54% of students enrolled in the school were identified as English Language Learners and 11% of the total school population were eligible for special education services under IDEA.

**Table 1.**

Demographic characteristics of the entire school population.

Demographic Characteristics	Percentage
Asian/Pacific Islander	18%
Hispanic	46%
African American	3%
Caucasian	30%
Low Socio-Economic	84%
English Language Learners	54%
Students Eligible for Receiving IEP services	11%

The primary investigator observed four classrooms in which the classroom teacher had volunteered to participate in the study. Across two instructional sessions indicated by teachers as the time in which the highest rate of off-task behaviors occurs, the researcher collected data on the on-task behavior of the classrooms to verify high rates of problem behaviors. During this initial observation, the students in the class were seated in groups of two-six students and the researcher recorded data for each group throughout the observational sessions. The session lasted up to 50 minutes and the primary investigator used a 30-second momentary time sampling in which each group's behavior was recorded (Gast & Ledford, 2014). Off-task or problem behaviors included talking to a peer without permission, arguing, getting out of seat without permission, throwing materials, shouting, looking around the classroom (Wills et al., 2016). Four classrooms demonstrating off-task behavior for more than 40% of the class period were selected for participation in the study.

Target students included in the study were two to three students in each class nominated by teachers as exhibiting high rates of problem behavior. The high rate of problem behavior demonstrated by the students was verified during initial observation sessions. Demographic characteristics of target students in each of the three classrooms is presented in Table 2.

Pseudonyms are used to protect student confidentiality. The target students' ages ranged from 12-13. All target students were male and identified as English Language Learners. Two of the target students' primary language was Marshallese, and six of the target students were Spanish-speaking.

**Table 2.**

Characteristics of target students.

Student Name	Gender	Age	Language	IEP Services	ELL
Mario	Male	12	Spanish	Yes	Yes
Diego	Male	12	Spanish	Yes	Yes
Hiro	Male	13	Hawaii/Pacific Islander	No	Yes
Ruben	Male	12	Spanish	No	Yes
Sebastian	Male	12	Spanish	No	Yes
Mateo	Male	13	Spanish	Yes	Yes
Adrian	Male	12	Spanish	No	Yes
Neihana	Male	13	Hawaii/Pacific Islander	Yes	Yes

All students in each class identified for inclusion were invited to participate. A consent form with information on the study and activities in which the child would be involved was sent home with each child in the identified classrooms. The principal investigator attended parent-teacher conferences at the school in order to answer any questions the families might have

regarding the study. If a parent chose not to participate, their child's behavior was not recorded during observation and data collection of the dependent variables. Only those children whose parents or guardians consented to their participation were included in data. Upon receipt of parental consent, the principal investigator and teacher dispersed student assent forms to each of the students. The principal investigator was present to answer any questions the students had regarding their participation in the study.

In each classroom identified for inclusion and with at least 40% of students consenting to participate, teachers were invited to participate by receiving a consent form with information on the study. The principal investigator was available for each of the teachers to respond to questions. Four teachers, who consented in writing, participated in the study. As such, data were not recorded on the behavior of the special education co-teachers present in classroom one and classroom three. All forms were collected prior to teacher interviews and data collection.

### **Setting**

The study took place in three inclusion or co-taught classroom settings. Characteristics of the participating classrooms are presented in Table 3. The content area in classroom one and classroom three was language arts, and the content area of classroom two was science. Classroom two and three were seventh grade classes while classroom one was sixth grade. Classroom one and three were co-taught classes with two licensed teachers present in the classroom during instruction, and classroom two was an inclusion class with only one classroom teacher present. Teachers were trained on the implementation of CW-FIT in their classrooms. During data collection across all conditions, the students were seated at round or rectangular-shaped tables in groups of 2-5. Each classroom included a smart board and white board from



which the teacher presented the lesson. Each student in the classroom had access to his or her own Chromebook for completion of assignments.

**Table 3.**

Characteristics of participating classrooms.

Classroom	Grade Level	Classroom Setting	Subject
Classroom One	Sixth Grade	Co-Taught	Language Arts
Classroom Two	Seventh Grade	Inclusion	Science
Classroom Three	Seventh Grade	Co-Taught	Language Arts

### **Research Design**

A multiple-baseline across participants design was used to assess the experimental effect of the CW-FIT intervention (Ledford & Gast, 2018). To establish experimental control and limit threats to validity, classrooms which were functionally independent and functionally similar were selected for participation (Ledford & Gast, 2018). The implementation of the intervention was staggered across each condition to further promote internal validity of the intervention (Kratowill & Levin, 2010). Baseline data was collected across all conditions concurrently. The intervention was implemented in the first classroom when baseline data demonstrated stability defined as three consecutive sessions with data points ranging within 25% (Gast & Ledford, 2014). The intervention was applied to each remaining condition when a clear change in level was observed in the previous condition.

### **Dependent Variables**

Four dependent measures were included in this study and are described below (a) on-task behavior for all participating students (b) behavior specific teacher praise statements (c) on-task behavior for target students (d) teacher reprimands. The researcher observed each class up to

thirty minutes and recorded whole class on-task behavior and target student on-task behavior and teacher praise and reprimand statements.

**On-Task Behavior.** On-task behavior was measured with a momentary time sampling on a 30-second fixed interval schedule (Gast & Ledford, 2014; Wills et al., 2014). Students were seated in groups of 2-5 throughout data collection. At the end of each 30-second interval, the on-task behavior of all students in each group with consent forms was recorded. On task behavior was defined as (1) attending to the teacher (e.g., looking at the teacher, taking notes, or awaiting instruction) (2) completing assigned task (e.g., eyes on paper, participation in group discussion, raising hand for assistance, complying with instructions) (3) responding appropriately to teacher instruction (e.g., gathering appropriate materials, writing information, sitting and waiting quietly) (Wills et al., 2014; Wills et al., 2016).

In order for the interval to be scored for on-task behavior, the entire student population in each group will demonstrate the target behavior at the end of each interval. The timer will go off for the interval; the researcher will scan each group working clockwise around the classroom and record demonstration of on-task behavior. The researcher will indicate students engaged in on-task behavior by writing a “+” in the box on the data collection form. If a student in a group is observed not demonstrating on-task behaviors, the researcher will record a “-“ in the box for the interval.

**Behavior Specific Praise Statements.** Behavior specific teacher praise statements were measured on a frequency basis across each observational session. The number of times the teacher provides specific praise statements to students, such as, “Nice work gathering your materials!” or “Team one is doing a great job staying on task,” will be tallied throughout each observational session at the top of the data collection form to render a frequency measure of

behavior specific praise statements. Non-examples of behavior specific praise include simple phrases, such as, “Nice work” or “Good listening.”

**Target Student On-Task Behavior.** On-task behavior for the two-three target participants in each class was recorded using a momentary-time sampling on a fixed interval of 30-seconds throughout the observational session (Gast & Ledford, 2014). At the end of each interval, the target student’s on task behavior was recorded as a “+” if the student was engaged in on-task behavior. On-task behavior was defined as (1) attending to the teacher (e.g., looking at the teacher, taking notes, or awaiting instruction) (2) completing assigned task (e.g., eyes on paper, participation in group discussion, raising hand for assistance, complying with instructions) (3) responding appropriately to teacher instruction (e.g., gathering appropriate materials, writing information, sitting and waiting quietly) (Wills et al., 2014; Wills et al., 2016).

**Teacher Reprimands.** Teacher reprimands were measured on a frequency count. Teacher reprimands include any corrective statement made to a target student, a group of students, or the entire class. Corrective statements include, “Get back on task,” “Stop talking to your partner,” “Sit down,” “Shhh.”

### **Procedural Fidelity**

In order to maintain procedural fidelity and limit threats to internal validity (Gast & Ledford, 2014), two procedural fidelity measures were used. A start-up fidelity checklist identified the procedures to teach students the target behaviors or skills and was used to initiate implementation of the intervention (Appendix A). The start-up fidelity checklist consisted of the following eight criteria: display of skills in classroom, 10 minutes group lesson on skills, reviewing the definition of the skill, discussing the rationale of the skill, student examples of skills, and review. The start-up fidelity checklist was completed during all lessons on target

skills. Teachers also used a teaching script during this phase of the intervention. The fidelity checklist and teaching script limited threats to internal validity (Gast & Ledford, 2014).

An additional fidelity measure was used to measure adherence to fidelity during implementation of the CW-FIT procedures (Appendix B). The statements included in the procedural fidelity checklist included: the clear display of classroom expectations; display of team point chart; daily point goal posted; pre-corrects on skills at beginning of session; timer used and set at appropriate intervals; points awarded to teams; 4:1 praise to reprimand ratio; praise statements were behavior or skill specific; and points were tallied and reward was delivered. During all sessions, teachers completed the nine statement procedural fidelity checklist (Wills & Kamps, 2016a). For reliability purposes, the primary observer completed a procedural fidelity checklist indicating the presence of the aforementioned essential components of the intervention each week (Wills & Kamps, 2016a). The checklist completed by the primary observer and the checklist completed by the teachers at the conclusion of each session created two fidelity indices by which to assess validity of procedural fidelity (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005)

### **Interobserver Agreement**

To assess reliability of the data collected during all phases of the intervention and limit threats to internal validity (Gast & Ledford, 2014), interobserver agreement (IOA) was collected for a minimum of 30% of baseline and treatment conditions by the primary researcher and three secondary observers. One of the secondary observers was a recent graduate of a masters program. The second observer was a university faculty member, and the third observer was enrolled in a special education masters program at the time of data collection. Training included

primary and secondary observers collecting on-task data for the whole class and target students until observers demonstrated 90% agreement.

During the recording of IOA, two data collectors, the primary researcher and the secondary observer, simultaneously recorded data on the dependent variables. For collection of on-task data, the primary researcher discretely named each group, “Group one, group two, group three... target one, target two,” at which point both observers would scan the group or student and record the behavior demonstrated. Praise and reprimand statement data were collected upon occurrence throughout each observational session.

The IOA percentage for on-task behavior was calculated with a point-by-point agreement index by dividing the number of agreements by the total number of agreements and disagreements then multiplying that number by 100 ( $\text{agreements}/(\text{agreements} + \text{disagreements}) \times 100$ ) to render a percentage of agreement (Ledford & Gast, 2018). IOA data for frequency of praise and reprimand statements was calculated with gross agreement procedures in which the smaller measurement was divided by the larger measurement and multiplied by 100 ( $\text{small measure}/\text{large measure} \times 100$ ) (Ledford & Gast, 2018).

IOA for whole class on-task data during baseline sessions was 89% (range 83%-99%) and 94% (range 85%-100%) during training and treatment sessions. For target student on-task data, IOA was 89% (range 65%-100%) during baseline and 95% (range 84%-100%) during training and treatment. Across baseline, training, and treatment, gross agreement IOA for praise statements was 88% (range 50%-100%), and 67% (range 0-100%) for reprimand statements. Lower IOA agreement was shown with reprimand statements. Lower rates of agreement with reprimand statements was often due to low frequency of occurrence of such behavior and the missed recording of one instance of behavior.

## **Independent Variable**

The independent variable associated with the treatment phase of the research design was the implementation of the Class-Wide Function-related Intervention Team program (Kamps et al., 2014; Wills et al., 2016). The intervention was implemented in a class-wide group contingency game in which students were awarded points in teams of two to five for the display of target behaviors at the end of a three to five minute interval (Wills et al., 2016). Groups that met pre-determined criteria then had access to the reward selected from the reinforcement menu at the end of the instructional session or time in which the game was played.

## **Materials**

During the intervention phase of the study, the materials included one laminated chart to award the groups points at pre-determined intervals. The chart was fixed at the front of the classroom. The date, point goal, and reward criteria was indicated on the chart daily. Materials also included a timer participating teachers used to track the intervals. The behaviors identified as target behaviors for students in the participating classrooms were prominently displayed on posters at the front of the room within view of all students. The teacher used these posters as a visual support to pre-correct during implementation of the intervention (Wills et al., 2016). All three participating teachers selected “Follow Directions the 1st Time,” and “Be Respectful” as their target behaviors.

## **General Procedures**

**Baseline.** Data on the dependent variables was collected during observational sessions lasting up to 40 minutes across all classrooms in which teachers implement their typical classroom management procedures. Observers recorded on-task behavior of the whole class and the on-task behavior of the target students throughout the observational session. The observers

also recorded the frequency of behavior specific praise and reprimand statements during these observational sessions. Baseline sessions continued until stable percentages of on-task behavior was demonstrated in each class across three sessions. Stability of the data was assessed with a visual analysis of the graph and was indicated when 80% or more of the data points fall within a 25% range of the median level of the data set (Gast & Ledford, 2014).

**Teacher Training.** Teachers were trained by the primary researcher across two forty-five minute sessions or one ninety minute session. Teachers viewed a PowerPoint covering the basic components of the CW-FIT program. The training took place at the teacher's school in their classroom and consisted of the following: (a) lessons and teaching scripts; (b) creation of teams; (c) creating daily goals and awarding points; (d) using behavior specific praise statements; (e) rewards and incentives; and (f) help cards and self-monitoring. Teachers watched two videos of the implementation of the CW-FIT program and were given a script for start-up and continued implementation of the program. The teachers reviewed the two procedural fidelity checklists associated with initial and ongoing implementation of the intervention. At the conclusion of the training, teachers were given the opportunity to ask questions or share concerns regarding the intervention.

During the training, each teacher participating in the study identified target behaviors. In order to promote teacher autonomy and buy-in, the teacher identified problem behaviors in her classroom. Together, the teacher and researcher created a list of on-task skills or target behaviors the teacher wanted to see in her classroom. All three teachers participating in the study selected "Follow Directions the First Time" and "Be Respectful" as their target behaviors. Teachers were provided with posters to display in their classrooms that prominently displayed the identified target skills.

To promote fidelity, during the training condition and at the onset of implementation of the intervention in their respective classrooms, teachers received immediate feedback and coaching aligned with the essential components of the intervention as identified on the start-up fidelity checklist and intervention procedural fidelity checklist. If fidelity dropped below 90% while the teacher implemented the game, the primary researcher provided feedback to the teachers during or immediately following the intervention session for a maximum of ten minutes. Feedback and modeling of an essential component of the intervention. During a majority of the feedback sessions, the primary researcher provided feedback on increasing praise, awarding bonus points to target students, and ensuring praise and reprimands were behavior/skill specific.

**Student Training.** Prior to the implementation of the intervention procedure, teachers employed a direct instruction model to teach the appropriate behaviors to the students (Wills et al., 2016). The teachers displayed the posters depicting the target behavior and describe the target behaviors to the students (Wills et al., 2016). Teachers provided the rationale for the demonstration of target behaviors and model the behavior for the students, including, examples and non-examples of the target behaviors. Students then had the opportunity to role play the behaviors. The teachers provided feedback and answered questions regarding the behavior expectations. The student training component lasted approximately 10 minutes for each skill with only one skill taught per day.

**Reinforcement Menu.** At the onset of student training, the teacher asked the students to discuss in their teams items or activities they would like to earn while playing CW-FIT. Students raised their hands to share ideas, and the teacher recorded the options on the board. The items and activities identified created a reinforcement menu for students to select rewards each day (Wills et al., 2016). The reinforcement menu in classroom one consisted of daily rewards



and larger rewards, such as, free time, outside time, snack, and a beverage from a preferred restaurant; the reinforcement menus in classrooms two and three consisted only of daily rewards, such as, computer time, free-time, and snack.

**CW-FIT Implementation.** Teachers selected their most challenging instructional session for the implementation of the CW-FIT intervention. Each participating teacher implemented CW-FIT in their classrooms Monday-Friday. The class was divided into groups of three to five students that were determined by seating proximity (Wills et al., 2016). Each group's team number was displayed on their tables. The teacher indicated each groups number as represented on the Team Point Chart (Appendix C) at the front of the classroom and checked for understanding.

On the first day of intervention implementation, teachers described the basic procedures associated with the CW-FIT games. Teachers shared that students would work in teams and had the opportunity to earn points when their teams demonstrated the target behaviors. The teacher discussed how each day a predetermined number of points was required to earn access to the reward activity or item selected by the students, and the teacher would set a timer to record the students' behavior throughout class. When teams met their point goal, they would have access to reward selected at the beginning of the class period and displayed on the Team Point Chart.

At the beginning of each subsequent instructional session, the teacher reviewed the target skills as displayed on the posters, announced the point goal for the groups, reminded students how the points will be awarded, identified the reward for meeting criteria, and displayed the point form on the board at the front of the classroom (Wills et al., 2016). The criteria for accessing the reward or point goal was determined by the teacher using the goal setting formula. The point goal was determined by multiplying the number of opportunities for points by 80%.

With a 3-5 minute interval, students will have the opportunity to earn a point approximately every 5 minutes or 18 times per 90 minute instructional sessions and nine times per a 45 minute instructional session. The point goal was then up to 14 points for the language arts classes, which were 90 minutes in length, and eight points for the science class, which was 45 minutes in length.

The teacher set the timer to beep every three to five minutes on a variable interval schedule and awarded points to the teams demonstrating target behaviors at the end of the interval (Wills et al., 2016). The variable interval approach reduced the likelihood that students would be able to predict the schedule of reinforcement and only display the target behaviors at the end of the interval (Wills et al., 2016). When the timer sounded, the teacher scanned the room and praised each team for the demonstration of target behaviors. For example, “Nice job, Team One, Two, and Four, listening to instruction and gathering materials. Team Three, you are doing a great job respecting your peers. If teams were demonstrating off-task behaviors, the teacher reminded such teams to demonstrate the target behaviors, such as, “Team Five, remember to keep your eyes on me while I am teaching, so you can get a point next time.”

During game play, the teacher vocalized behavior specific praise at a minimum ratio of four praises for every one reprimand when students were exhibiting the predetermined target behaviors, Following Directions the First Time and Being Respectful by looking at the speaker, using nice words, and raising hands/taking turns.. The teacher’s praise focused on students who demonstrated high-rates of problem behaviors. The teacher also awarded bonus points to teams if they are demonstrating the target behaviors at any point during the intervention. At the end of the game session, the teacher totaled the points and provided teams meeting criteria with access to the reward for the last 5-10 minutes of class.

## **Social Validity**

To evaluate the extent to which teachers and students are satisfied with the CW-FIT intervention as a classroom management strategy, the primary investigator collected two measures of social validity after the treatment phases of the intervention (Gast & Ledford, 2014). In order to assess teacher and student satisfaction with the intervention, both parties completed social validity surveys.

At the conclusion of the final treatment phase, teachers completed a social validity survey on a 6 point Likert Scale to assess overall satisfaction with the implementation of the intervention, the ease of implementation of the intervention and the likelihood that they will implement the intervention in the future (Appendix D) (Horner et al., 2005). All students participating in the research completed a social validity survey on a dichotomous survey indicating their satisfaction with the intervention (Appendix E) (Horner et al., 2005).

## **Analysis of Data**

**Visual Analysis.** Data of the dependent variables were graphed and a visual analysis was conducted by the primary researcher to assess experimental effect and make determinations regarding the initiation of treatment. Experimental effect was assessed as the intervention was implemented in each participating classroom (Gast & Ledford, 2014; Horner et al., 2005). The visual analysis included an assessment of trend, variability, immediacy, level, magnitude and percent of non-overlapping data (PND). The treatment demonstrated effectiveness if there was an immediate change in level from baseline to treatment, a high percent of non-overlapping data (PND), an increasing trend in on-task behavior and behavior specific praise statements, and a decreasing trend in off-task behavior and teacher reprimands (Gast & Ledford, 2014).

The visual analysis to assess experimental effect took place at each phase change across the graphed data set for the dependent variables. In order to identify level changes, the researcher compared the value of the last data point of the baseline condition to the first data point in the treatment condition (Gast & Ledford, 2014). Immediacy of level change was recognized if the changes in on-task behavior and off-task behavior occur immediately after the implementation of the group contingency intervention (Gast & Ledford, 2014).

In order to identify changes in trend, the researcher visually analyzed data to see if data accelerated, decelerated, or demonstrated no change across treatment conditions (Gast & Ledford, 2014). Experimental effect occurred if during the implementation of the intervention, the data demonstrated an accelerating trend in on-task behavior and a decelerating trend in off-task behavior from baseline conditions to treatment conditions (Gast & Ledford, 2014).

The indices of behavior specific praise and reprimands were displayed in line graphs with the number of praise and reprimand statements indicated during each observational session (Gast & Ledford, 2014). The visual analysis of both praise and reprimand statements included an assessment of trend, variability, immediacy, level, and magnitude.

Finally to calculate PND, the researcher identified the data range in the baseline conditions, counted the number of data points in the associated treatment conditions, counted the total number of data points, which were outside of the range previously identified in the baseline condition, then divided the number of data points outside of the baseline data point range by the total number of data points in the treatment condition, then multiplied this number by one hundred (Gast & Ledford, 2014). The calculated number rendered a PND if the number is higher than 80%, a high effect size was concluded, if the number is lower than 80%, then the experimental effect will be low (Gast & Ledford, 2014).

The researcher assessed participant consumer satisfaction with the implementation of the intervention by calculating the mean and range of the social validity surveys. Mean data for the teacher surveys was collected by adding the number circled on the Likert scale and dividing the sum of the responses by the number of participating teachers for each respective question. This quotient rendered a mean in which stronger agreement was indicated with values closer to (6) and stronger disagreement was shown with values closer to (1). The range of responses for each question were also collected and displayed.

Student surveys were given a score according to the following steps. When the agree response was indicated, students were given one point. When the do not agree response was indicated, the statement received two points. The responses for each question were then added and divided by the number of participating students. This quotient rendered a mean in which values closer to (1) indicated stronger agreement and values closer to (2) indicated stronger disagreement.

**Tau-U.** In addition to the aforementioned visual analyses of the data, the primary researcher calculated a Tau-U effect size measure for whole class on-task behavior between each baseline and treatment phase of the intervention across all conditions. As described by Parker and colleagues (2011), Tau-U is comprised of four indices: A versus B nonoverlap, nonoverlap and B phase trend, nonoverlap baseline trend controlled, and nonoverlap and Phase B trend with Phase B trend controlled. The data were entered into the online Tau-U calculator, [www.singlecaseresearch.org](http://www.singlecaseresearch.org), to render the associated effect size measures (Vannest et al., 2016). When interpreting the results of the effect size measure,  $\text{Tau-U} > .80$  indicated a very strong effect,  $\text{Tau-U} = .60$  to  $.80$  indicated a strong effect, and  $.20$  to  $.60$  indicated a moderate effect (Vannest & Ninci, 2015).

## CHAPTER FOUR

### Results

#### Introduction

The purpose of this study was to evaluate the impact of the Class-Wide Function-related Intervention Teams classroom management intervention on the on-task classroom behavior of diverse adolescent students and the teacher praise and reprimand statements. The study was conducted across three phases: (a) baseline, (b) training, and (c) treatment. This chapter will present the results of the study. First, direct observation data on the dependent variables (a) whole class on-task, (b) target student on-task, (c) teacher praise statements, and (d) teacher reprimand statements is presented. Then, the Tau-U effect size measure findings is provided. Finally, teacher and student consumer satisfaction ratings are presented.

#### Direct Observation Data

Direct observation data were collected on the following dependent variables (a) on-task data for the whole class, (b) target student on-task data, (c) teacher praise statements, (d) teacher reprimand statements. On-task behavior for whole class and target students were collected with a 30-second momentary time sampling and presented as a percentage of on-task. Teacher praise and reprimand statements were collected with a frequency count throughout each observational session.

Data were collected following the procedures of a concurrent multiple-baseline design across 30 observational sessions. Baseline data were collected in four classrooms. However, the end of the school year prohibited introduction of the independent variable. The dependent variable data for each participating classroom were graphed to complete visual analyses of the data. Data were analyzed visually for trend, stability, and immediacy of effect. Data collection

ended before classroom three demonstrated stability due to the end of the school year.

Percentage of non-overlapping data were calculated to contrast data between phases. Tau-U indices were calculated between each baseline and treatment phase of whole class student on-task behavior for the participating classrooms.

Figure 1 depicts the on-task data for the three participating classrooms during baseline, training, and treatment. Figure 2 displays the on-task data for the target students in each participating classroom during baseline, training, and treatment. Figure 3 shows the praise and reprimand statements made by each participating teacher across baseline, training, and treatment. Table 4 displays the *Tau-U* measure of effect size. Table 5 displays teacher rated consumer satisfaction with the intervention. Table 6 shows student rated consumer satisfaction with the intervention.

### **Visual Analysis of Direct Observation Data**

**Whole Class On-Task.** Figure 1 shows the percentage of 30-second intervals in which students with participatory consents are demonstrating on-task behavior in each of the participating classrooms. Such data indicate that implementation of CW-FIT led to an increase in on-task behavior in all classrooms. The y-axis indicates the percentage of on-task behavior observed in each classroom. The x-axis shows the concurrent session in which data were collected. Breaks in the data are attributed to teacher absences or changes in schedules with the participating school's annual testing.

Baseline data were collected for five sessions in classroom one. During baseline, on-task data for classroom one averaged 54% (range 49%-60%). Baseline data demonstrated moderate stability. The teacher began implementing the CW-FIT intervention during the sixth observational session. Procedural fidelity criteria of 90% was met after two training sessions in

which in vivo feedback was communicated by the primary researcher. The average on-task during training was 88% (range 84%-91%). The data demonstrated an immediate abrupt change in level increasing 36%, from 49% to 85%, after the implementation of the intervention during the training condition. During the intervention phase, on-task behavior averaged 84% (range 66%-98%). During session 20, 21, and 24, a decrease in on-task behavior was observed. However, on-task behavior showed an increasing trend and stability for sessions 25-30. The percentage of non-overlapping data between phases was 100% indicated a strong effect.

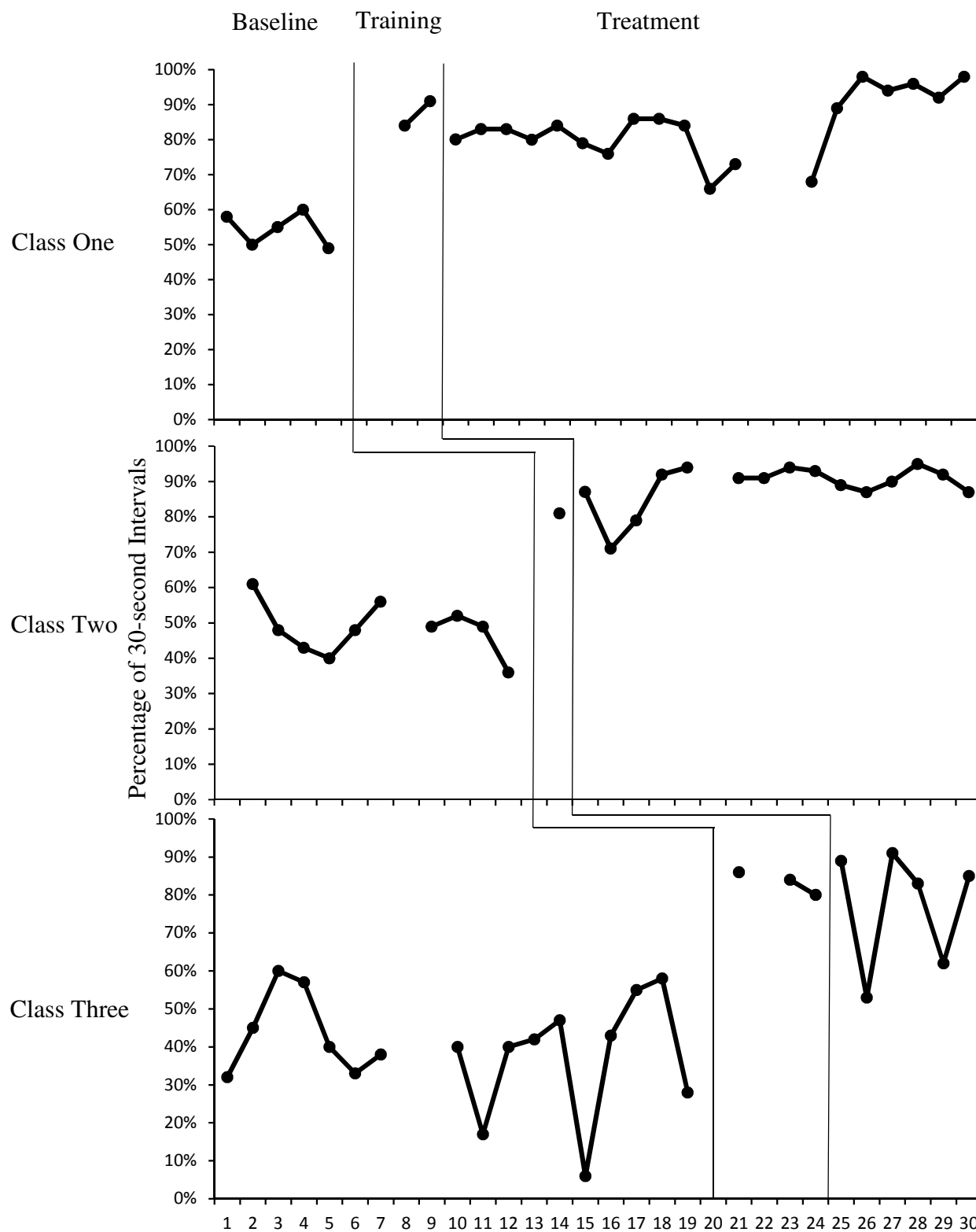
Baseline data were collected for 10 sessions in classroom two. During the baseline condition, classroom two on-task averaged 48% (range 36%-61%). On-task data showed a decreasing trend in classroom two prior to the introduction of the intervention. After one training session, criteria for procedural fidelity criteria was met. During training, on-task was 81%. The data demonstrated an immediate change in level after the implementation of the intervention increasing 45%. On-task behavior throughout treatment for classroom two averaged 88% (range 71%-94%). Initially, the data were variable, ranging from 79%-91%. On-task behavior continued to increase during treatment, and the data demonstrated moderate stability the last twelve sessions of treatment, range 87%-95%. Between baseline, training, and treatment, percentage of non-overlapping data was 100% indicating a strong effect.

In classroom three, baseline data were collected across 16 sessions. On-task behavior in classroom three were variable during baseline, averaged 40% (range 6%-58%). The data were variable during baseline, ranging from 6%-60%. When the CW-FIT intervention was introduced during training, the data showed an immediate change in level, increasing, 58% from 28% to 86%. Procedural fidelity criteria of 90% were met after three training sessions. On-task data during training averaged 83% (80%-86%). In the treatment condition, on-task data did not



stabilize but continued to show variability, averaging 79% (range 53%-91%). Percentage of non-overlapping was 89% between baseline, training and treatment suggesting a strong experimental effect.

**Summary.** The visual analysis of whole class on-task data evaluated the relationship between the implementation of Class-Wide Function-related Intervention Teams and adolescent student behavior. Immediate increases in level were observed in all three participating classrooms upon the introduction of the intervention. During treatment, an accelerating trend and stability was shown in classroom one and classroom two. Although classroom three's data continued to show variability during treatment, variability decreased from a range of 54% during baseline to 38% in treatment. Percentage of non-overlapping data between baseline, and training and treatment document a strong effect on student behavior in all classrooms as there was no overlap between phases in classroom one and two and only one data point of overlap in classroom three. Because all participating classrooms showed an abrupt increase in level and no or minimal overlap between phases, a functional relation between student on-task behavior and CW-FIT was established.



**Figure 1.** Percentage of intervals with participating students demonstrating on-task behavior.

**Target Student On-Task.** On-task data for targets students are displayed in Figure 2. The y-axis shows the percentage of on-task behavior for each target student, and the x-axis depicts the session. Implementation of the CW-FIT classroom management intervention led to increases in on-task behavior for all participating target students. Breaks in the data indicate sessions in which target students were absent during data collection.

**Classroom One Target Students.** Mario's level of on-task behavior during baseline averaged 37% (range 15%-57%). The data were variable during baseline. The data showed an immediate change in level once the intervention was implemented from 50% to 90%, an increase of 40%. Mario had many absences during treatment and was present for only 15 out of 32 training and treatment days. Mario's on-task behavior during training and treatment averaged 84% (range 60-100%) a 47% increase from baseline. The data were variable during treatment, but started to show stability and an increasing trend during sessions 25-29. However, the final day of data collection, his on-task dropped to 70%. Despite variability, percentage of non-overlapping data was 100% between baseline and treatment phases indicating a strong effect.

The baseline level of Diego's on-task behavior averaged 26% (range 12-47%). His data showed a decreasing trend prior to the implementation of the intervention. Diego's on-task behavior showed an immediate change in level increasing 35%, from 12% to 47% when the CW-FIT intervention was implemented. During treatment and training, Diego was present 18 out of 32 sessions. Across treatment, Diego's on-task behavior averaged 63% (range 8 - 100%). Diego's on-task behavior did not show stability during treatment, but remained variable. His percentage of non-overlapping data were 83% from baseline to training and treatment showing a strong effect.

***Classroom Two Target Students.*** For Hiro, baseline levels of on-task behavior were highly variable with an average of 52% (range 12-85%). The final four data points in baseline showed a decreasing trend. Upon implementation of the CW-FIT intervention, Hiro's on-task behavior increased from 35% to 82%. Treatment levels of on-task behavior averaged 90% (range 70-100%). The data showed accelerating trend and demonstrated moderate stability the last seven data points ranging from 89% to 100%. The percentage of non-overlapping data from baseline to training and treatment was 73% indicating a moderate effect.

Ruben's level of on-task behavior during baseline averaged 23% (range 14-59%). Prior to the implementation of the intervention, the data showed a decreasing trend. An immediate change in level was observed when the intervention was implemented when Ruben's on-task increased from 14% to 65%. Ruben was present in the classroom seven out of 17 sessions, but his on-task behavior levels averaged 80% and showed an increasing trend until the last observational session when a drop in on-task to 70% was observed. His percentage of non-overlapping data between baseline and treatment was 100% suggesting a strong effect.

During baseline, Sebastian's on-task behavior was highly variable, ranging from 13% to 67% with an average of 46%. With the implementation of the intervention, an immediate change in level was observed. Sebastian's on-task increased 33% from 67% to 100%. On-task behavior levels showed an increasing trend and quickly demonstrated stability. Such stability maintained throughout treatment. During treatment, Sebastian's on-task behavior averaged 97% (range 90%-100%). The percentage of non-overlapping data was 100% between baseline, training, and treatment, showing a strong effect.

***Classroom Three Target Students.*** Baseline levels of on-task behavior for Mateo averaged 32% (range 0-50%). Stability was observed the last four data points in baseline. An

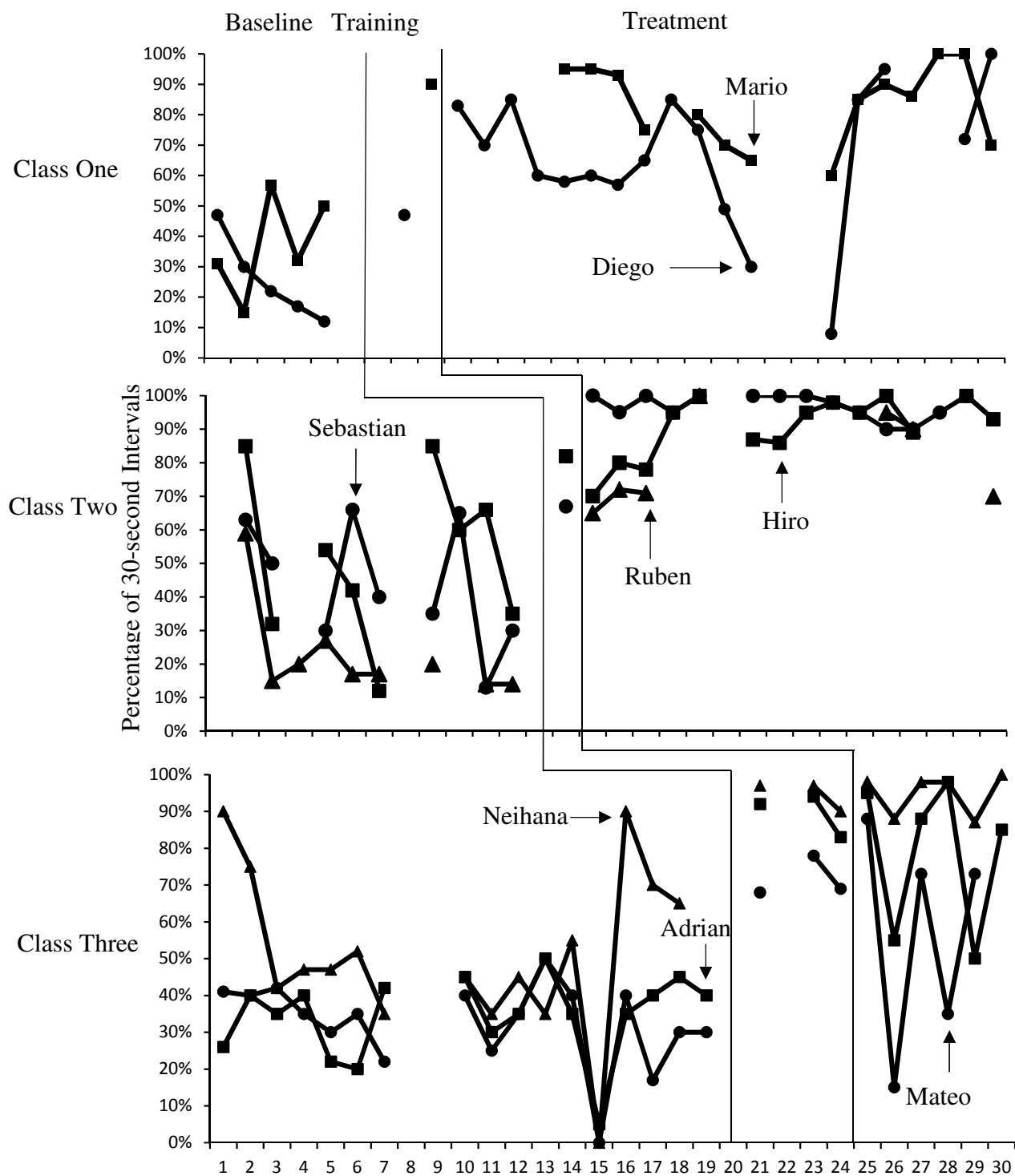
immediate change in level was shown upon implementation of the intervention increasing from 30% to 68%. On-task levels averaged 72% during the training phase and 56% (range 15-88%) during treatment. The data did not show stability but were variable throughout treatment. No trend was observed during treatment. Percentage of non-overlapping data was 75% between baseline and training/treatment phases indicating moderate effect.

Adrian's on-task behavior during baseline averaged 34% (range 5-50%). On-task was variable during most of baseline sessions but showed stabilization prior to the implementation of the intervention. When the intervention was implemented in the training condition, an abrupt and immediate change in level was observed as Adrian's on-task behavior increased from 40% to 92%. On-task averaged 90% during training. The average percentage of intervals with on-task behavior was 79% during the treatment phase. However, on-task did not demonstrate stability during treatment but remained variable. Percentage of non-overlapping data across baseline and training/treatment phases was 89% suggesting a strong effect.

Across the baseline condition, Neihana's on-task behavior averaged 52% (range 0%-90%). Baseline levels of on-task behavior were highly variable and showed a slight decreasing trend prior to the implementation of the intervention. When treatment was initiated during the training phase, an immediate change in level was observed increasing from the final baseline data point of 65% to 97%. During the training phase, Neihana's on-task behavior averaged 93%. Treatment levels of on-task behavior averaged 95% (range 87-100%). The data showed stability and percentage of non-overlapping data was 66% indicating a moderate effect.

**Summary.** The visual analysis of target student on-task data assessed the experimental effect of the CW-FIT intervention on the behavior of students indicated by teachers as demonstrating high rates of off-task behavior. For all participating students, an immediate

change in level was observed upon the introduction of the intervention. During treatment, on-task behavior for seven of the eight participating target students was at or approaching 100%. Variability in the data was observed for all but three students. However, PND indicated moderate to strong effects for all participating students. Despite the variability in the data shown for five of the eight participating students, the immediate increase in on-task behavior and high PND indicate a functional relation was established.



**Figure 2.** Percentage of intervals with target students demonstrating on-task behavior.

**Teacher Praise and Reprimand Statements.** Teacher praise and reprimand statements are shown in Figure 3. The x-axis shows the observational session, and the y-axis displays the total number of praises and reprimands. The implementation of the CW-FIT classroom management system led to increases in praise statements for all participating teachers and decreases in reprimand statements for two of three teachers. Breaks in data are found when classroom teachers were absent or changes in schedule were incurred as a result of school-wide testing.

In classroom one, baseline levels of praise statements averaged 1.2 (range 0-4). Conversely, reprimand statements were much higher in frequency during baseline, averaging 28 (range 11-43). Praise statements demonstrated stability and remained at low levels during baseline. Reprimand statements showed an accelerating trend prior to the implementation of the intervention. Both praise and reprimand statements demonstrated an immediate change in level upon the implementation of the intervention. Praise statements increased from zero to 36. Reprimand statements decreased from 43 to 18. During training, both praise and reprimands averaged 27. Treatment levels showed increased variability for both praise and reprimands. Average occurrence of praise statements per session was 19.4 (range 5-37). Reprimands averaged 7.1 (range 0-36). Abrupt increases in praise were observed twice during treatment. However, praise levels stabilized during the final five sessions of data collection. Reprimands showed moderate stability during treatment phases. Additionally, percentage of non-overlapping data for both praise and reprimands was 95% suggesting a strong effect.

In classroom two, praise statements did not occur at any point during baseline. Reprimand statements averaged 9.4 (range 0-30). During initial observation sessions, reprimand statements showed an accelerating trend; however, prior to the implementation of the

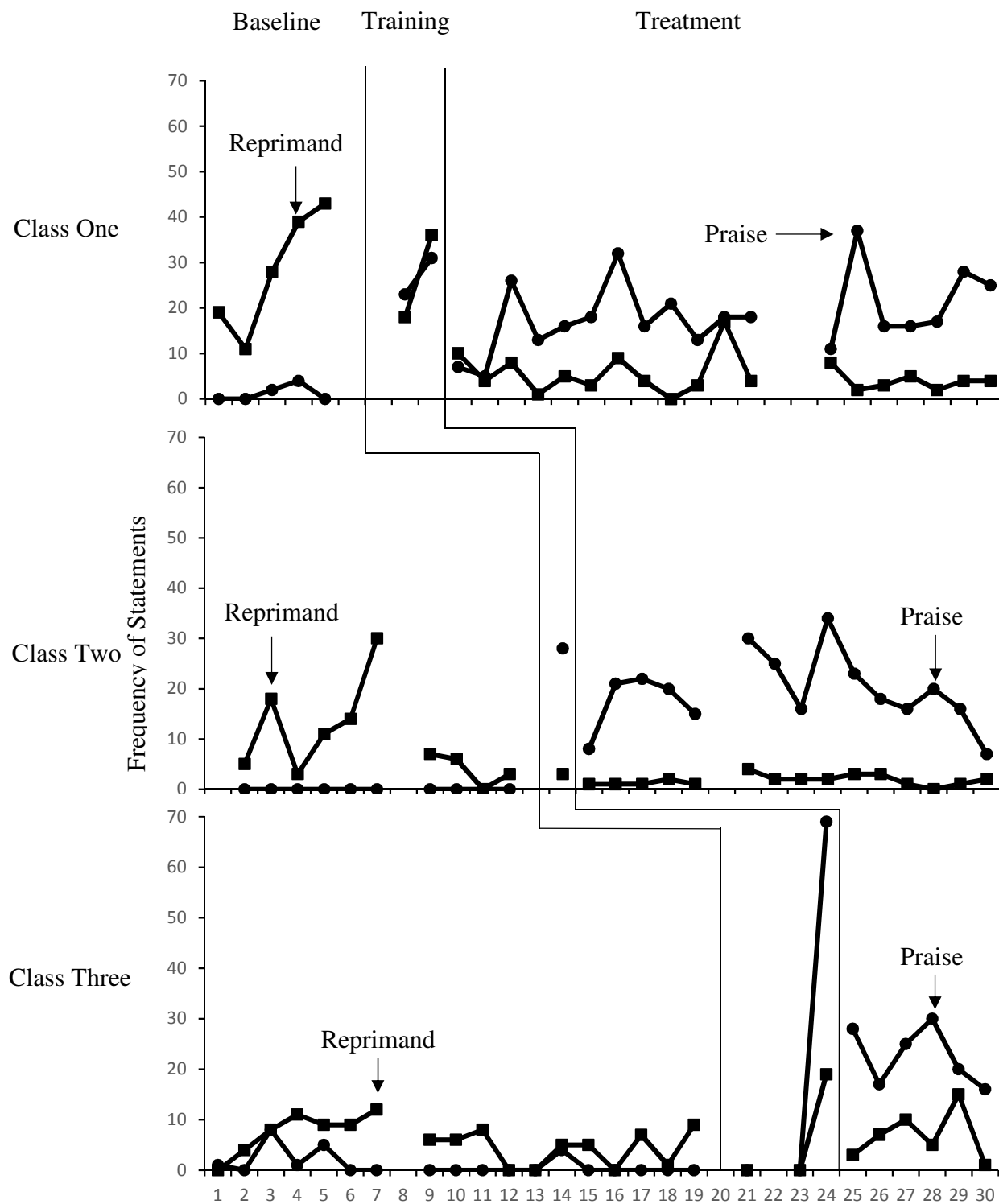


intervention reprimand statements decreased and remained at low levels. An abrupt change in praise levels was observed upon implementation of the intervention. Praise increased from 0 to 28. A change in level was not observed with reprimand statements as the data continued at the same frequency during baseline. Praise continued to occur at higher frequency during treatment, averaging 19.9 statements per observation session (range 7-30). Despite the increase in praise with the implementation of treatment, frequency of praise statements started to show a decelerating trend toward the conclusion of the observation sessions. However, praise statements percentage of non-overlapping data was 100% suggesting a strong effect. During treatment, the frequency of reprimand statements averaged 1.8 (range 0-4) which showed a decrease from the average at baseline. The data remained stable throughout treatment. PND for reprimand statements was 75% indicating a moderate effect.

Baseline levels of praise in classroom three averaged one praise statement per session (range 0-8). Reprimands occurred at higher frequency, averaging 5.6 (range 0-12). Both praise and reprimand statements demonstrated stability during baseline and no trend. Upon implementation of the intervention, a change in level was observed as the number of praise statements increased from 0 at baseline to 69 during the third training session. No praise statements were observed during training session one and two. During the first two training sessions, reprimand statements were also 0, but the frequency of reprimand statements increased during the third session to 19. Treatment levels of praise statements demonstrated stability and averaged 22.7 (range 16-30). Initially, an accelerating trend was observed during treatment, but the last three sessions showed a decrease in the frequency of praise. During treatment, reprimand statements also demonstrated moderate stability, averaging 6.8 (range 1-15). PND

from baseline to training and treatment was 78% for praise statements indicating a moderate effect, and 0% for reprimands showing no effect.

**Summary.** The visual analysis of praise and reprimand statements evaluated the functional relation between the CW-FIT intervention and teacher praise and reprimand statements. An increase in praise was observed in each participating classroom with PND showing a moderate to strong effect, indicating a functional relation. Although praise levels averaged higher during treatment, stability of the data was not observed, instead praise levels stayed variable. Reprimands showed significant decreases in classroom one and two and demonstrated stability during treatment, suggesting a functional relation. However, no functional relation for reprimands between baseline and treatment was observed in classroom three as a significant difference was not established during treatment.



**Figure 3.** Frequency of teacher praise and reprimand statements.

### Statistical Analysis of On-Task Observational Data

The Tau-U effect size measure was calculated to determine the magnitude of effect of the intervention on on-task behavior in all classrooms. The results of the calculations are shown in Table 4. In classroom one, from baseline to training and treatment,  $\text{Tau-U} = 1$  ( $p = .0006$ ) indicating a very strong effect. Classroom two also showed a very strong effect,  $\text{Tau-U} = 1$  ( $p = .0000$ ), from baseline to training and treatment. In classroom three a very strong effect was found from baseline to training and treatment,  $\text{Tau-U} = .9477$  ( $p = .0001$ ). When combining all classrooms, the overall weighted average from baseline to training and treatment  $\text{Tau-U} = .9817$  ( $p = .0000$ ) a very strong effect.

**Table 4.**

Tau-U measures of non-overlap between baseline and training/treatment phases.

	<i>Tau-U</i>	<i>p-value</i>
Classroom One	1	0.0006
Classroom Two	1	0.0000
Classroom Three	0.9477	0.0001
Overall Weighted Average	0.9817	0.0000

### Teacher Consumer Satisfaction

All participating teachers completed the Intervention Rating Profile-15 (IRP-15) at the conclusion of the study. The results of the IRP-15 are shown in Table 5. The IRP-15 includes 15 statements that teachers rated on a 6-point likert scale. Responses on the scale ranged from strongly disagree (1) to strongly agree (6). Higher ratings indicate stronger agreement with the survey statement. The statement that showed the strongest disagreement rating was “I like the procedures used in the intervention,” ( $M = 3$ ). Additional statements that teachers indicated

stronger disagreement ( $M = 3.7$ ) were, “I would be willing to use this intervention in the classroom setting,” “This intervention is consistent with those I have used in the past,” and “The intervention was a fair way to handle children’s problem behaviors.” The teacher in classroom three selected disagree (2) for the statements, “I would be willing to use this intervention in the classroom setting,” and “The intervention was a fair way to handle children’s problem behaviors.” The statement with the strongest agreement was “The children’s problem behaviors are severe enough to warrant the use of this intervention,” ( $M = 5.7$ ) Other statements that showed strong agreement ( $M = 4.7$ ) were, “This would be an acceptable intervention for children’s problem behavior,” “This intervention would not result in any negative side effects for children,” “This intervention would be appropriate for a variety of children,” and “Overall, this intervention would be beneficial for children.”

**Table 5.**

Teacher responses to the Intervention Rating Profile-15 on the implementation of Class-Wide Function-related Intervention Teams.

Statement	Mean	Range
1. This would be an acceptable intervention for children's problem behavior	4.7	(4-5)
2. Most teachers would find this intervention appropriate for behavior problems	4	4
3. This intervention should prove effective in changing children's problem behavior	4	4
4. I would suggest the use of this intervention to other teachers	4	(3-5)
5. The children's problem behaviors are severe enough to warrant the use of this intervention	5.7	(5-6)
6. Most teachers would find this intervention suitable for the problem behaviors	4.3	(4-5)
7. I would be willing to use this intervention in the classroom setting	3.7	(2-5)
8. This intervention would not result in negative side-effects for children	4.7	(4-5)
9. This intervention would be appropriate for a variety of children	5	(4-6)
10. This intervention is consistent with those I have used in classroom settings	3.7	(3-4)
11. The intervention was a fair way to handle children's problem behaviors	3.7	(2-5)
12. This intervention is reasonable for problem behaviors	4.3	(4-5)
13. I like the procedures used in this intervention	3	3
14. This intervention was a good way to handle children's problem behaviors	4.3	(4-5)
15. Overall, this intervention would be beneficial to children	4.7	(4-5)

Note. Adapted from Martens, B. & Witt, J. (1982) *The Intervention Rating Profile*. University of Nebraska-Lincoln.

## Student Consumer Satisfaction

At the conclusion of the study, participating students completed a modified version of the Children Intervention Rating Profile. The results of the survey are displayed in Table 6. The researcher read the statements to the students, and participating students indicated their agreement or disagreement with the statement. The survey included seven statements that students rated on a dichotomous survey as agree (1) or disagree (2). The statement with the largest number of disagreements ( $n = 32$ ) was, “My teacher was too harsh on me.” An additional statement that the majority of students indicated disagreement was, “CW-FIT may cause problems with my friends,” ( $n = 29$ ). The statement on the survey in which the majority of students agreed ( $n = 32$ ) was, “CW-FIT would be a good game to use with other kids.” Two additional statements with a high number of agreement were ( $n = 29$ ), “I like CW-FIT,” and “I think CW-FIT would help me do better in school.”

**Table 6.**

Student responses to the Children Intervention Rating Profile (CIRP) on the implementation of Class-Wide Function-related Intervention Teams

Statement	Yes	No
1. CW-FIT was a fair way to deal with classroom behavior	28	6
2. My teacher was too harsh on me	2	32
3. CW-FIT may cause problems with my friends	5	29
4. There are better ways to manage behavior than playing CW-FIT	11	23
5. CW-FIT would be a good game to use with other kids	32	2
6. I like CW-FIT	29	5
7. I think CW-FIT will help me do better in school	29	5

Note:  $n = 34$

Adapted from Kratochwill, T. (1985). *Advances in school psychology volume IV*. Hillsdale, NJ: Lawrence Erlbaum Associates.

## CHAPTER FIVE

### Discussion

#### Introduction

The purpose of this study was to evaluate the impact of the Class-Wide Function-related Intervention Teams behavior management strategy on the behavior of adolescent students from diverse ethnic backgrounds in inclusion classroom settings. The impact on the frequency of praise and reprimand statements of teachers was also evaluated. This chapter will discuss the results of the study. The chapter is organized as follows. First, the research questions guiding the study are presented to summarize the findings. Second, implications for practice are discussed. Next, limitations to this research are presented. Finally, considerations for future studies and a summary of the significance of the outcomes are discussed.

#### Research Questions

*Question One.* What are the effects of CW-FIT intervention on the on-task behavior of adolescent students from diverse ethnic backgrounds and students with disabilities in inclusive settings?

Baseline data were collected in four classrooms; however, the end of the school year inhibited introduction of the independent variable in the final classroom. Data were collected across all phases on the on-task behavior of students in the three remaining classrooms identified for inclusion. The data are presented in Figure 1. The overall demographics of the school showed a high percentage of minority students and students from low socio-economic status as presented in Table 1. The classrooms in which data were collected resembled the overall school demographic characteristics with the exception of students eligible for IEP services. In classrooms one and three, a higher percentage of students eligible for IEP services were present



in the classroom as both classrooms were co-taught with a general education and special education teacher present and responsible for instruction.

Baseline data showed low levels of on-task behavior in each participating classroom when the teacher maintained typical classroom procedures. Such procedures included verbal reprimands and checks. Checks were a component of the school-wide punitive management system in place. Students were given checks for demonstrating problem behaviors, such as, off-task, disruptive, and not prepared. Checks accumulated throughout the day and students could receive lunch detention, in-school suspension, and out-of-school suspension upon receipt of a pre-determined number of checks. With such procedures, the average on-task behavior during baseline was 54% in classroom one, 48% in classroom two, and 40% in classroom three.

Upon implementation of the intervention, immediate and strength of change were evident for all classrooms. Treatment levels of on-task behavior increased 36% in classroom one, 45% in classroom two, and 58% in classroom three. On-task levels remained significantly higher than baseline for classrooms one and two. Both classrooms also showed an accelerating trend and demonstrated stability during treatment. Although on-task behavior levels during treatment decreased to baseline levels in classroom three during one observational session, on-task behavior averaged higher than baseline levels throughout treatment for all other sessions. Effect size indices, PND and Tau-U, indicated moderate to strong effect in all classrooms suggesting a functional relation between implementation of CW-FIT and increases in adolescent student on-task behavior. Of the three participating classrooms, classroom two showed the strongest improvement in on-task behavior.

The findings of the current study are consistent with previous evaluations of the impact of the CW-FIT intervention (Kamps, Conklin, & Wills, 2015; Kamps et al., 2015b, Weeden et al.,

2017; Wills et al., 2014; Wills et al., 2016). An increase in on-task behavior was observed in all classrooms in which the CW-FIT intervention was implemented. These results indicate the CW-FIT intervention will improve on-task behavior levels in adolescent classrooms comprised of students from diverse ethnic backgrounds, students receiving free/reduced lunch, and students with disabilities. Such findings extend the literature, suggesting that the CW-FIT intervention may lead to improvements in behavior in diverse adolescent classrooms.

***Question Two.*** What are the effects of the CW-FIT intervention on on-task behavior of target students demonstrating high rates of problem behavior?

A functional relation between the CW-FIT intervention and target student on-task was established. The implementation of the CW-FIT intervention resulted in increases in on-task behavior for target students, who were nominated by teachers as demonstrating high rates of problem behaviors. These results are consistent with prior research evaluating the effect of the CW-FIT intervention on on-task behavior of students demonstrating high rates of problem behaviors (Kamps, Conklin, & Wills, 2015; Weeden et al., 2017; Wills et al., 2014; Wills et al., 2016).

Baseline data were collected on the behavior of 10 students at the onset of the study; however, the end of the school year prohibited introduction of the independent variable in the classroom of two participating target students. The target students' levels of on-task behavior are presented in Figure 2. All target students were from diverse ethnic backgrounds and were identified as English Language Learners. In addition, four of the eight students were eligible to receive IEP services.

During baseline, the target students in classroom one demonstrated low rates of on-task behavior. Mario's on-task averaged 37% and Diego's on-task averaged 26%. An immediate

increase in on-task behavior was observed for both target students. With the introduction of the intervention, Mario's on-task increased 40%, and Diego's on-task increased 35%. Throughout treatment, both Mario and Diego's on-task behavior remained variable. Although increasing trends were observed at times during data collection, the data did not stabilize. Yet, PND for both participants indicated a strong effect as treatment levels of on-task behavior averaged higher than baseline.

Baseline levels of on-task behavior were low for target students in classroom two. Hiro's baseline levels of on-task behavior averaged 52%. Ruben's on-task averaged 23%, and Sebastian's averaged 46%. With the implementation of the intervention, all target students in classroom two saw an increase in on-task behavior. Hiro's on-task increased 47%, Ruben's increased 51%, and Sebastian's on-task increased 33%. Both Hiro and Sebastian's on-task showed an increasing trend and demonstrated stability with treatment. Hiro's PND was 73% indicating a moderate effect, and Sebastian's PND was 100% showing a strong effect. Ruben's on-task increased throughout treatment, but showed a drop from 90% to 70% during the last observational session. Despite variability in Ruben's on-task levels, PND was 100% indicating a strong effect.

In classroom three, baseline levels of on-task were low. Mateo's on-task behavior averaged 32%, Adrian's on-task behavior averaged 34%, and Neihana's on-task averaged 52%. Upon implementation of the intervention, immediate increases in on-task behavior were observed for all three target students. On-task levels increased 38% for Mateo, 52% for Adrian, and 32% for Neihana. Despite immediacy of effect, only Neihana's responding demonstrated stability as both Mateo and Adrian's on-task levels were variable throughout treatment. On-task

levels averaged 72% during the training phase and 56% (range 15-88%) during treatment.

Moderate to strong effects were rendered with PND calculations for all three students.

Although all target students showed an increase in on-task behavior with the introduction of the intervention, many of the students, specifically, those eligible for IEP services continued to showed variability in their response to the intervention. This may have been explained by the number of absences of the students during treatment because they were not consistently exposed to the intervention.

Another possible explanation is the fidelity of implementation of the intervention. Although the teachers were able to implement most components of the intervention following the training session with fidelity, during treatment, both teacher one and teacher three required specific feedback on incorporating more praise statements and ensuring praise and reprimand statements were behavior specific. When low levels of praise were observed and a high number of reprimands were shown, on-task behavior often decreased for target students.

Additionally, during treatment, teacher three continued to issue checks as part of the school-wide punitive behavior management system. Despite feedback to increase praise and decrease reprimands, she issued checks to students in the classroom, including, those identified as target students when off-task behavior or problem behaviors were observed. After specific feedback from the primary investigator regarding the potential negative impact the checks had on the intervention, no checks were issued during the final observational session. However, the inconsistency in classroom management expectations demonstrated by the teacher very likely impacted student response to the intervention.

***Question Three.*** What are the effects of the CW-FIT intervention on teacher behavior specific praise and reprimand statements?

To evaluate the effect of the intervention on praise and reprimands, frequency of occurrence was measured during each observational session. CW-FIT led to increases in praise statements in three classrooms and decreases in reprimand statements in two of the three participating classrooms as displayed in Figure 3. A functional relation was demonstrated between CW-FIT and teacher praise and results were mixed for reprimand statements.

During baseline, the frequency of praise was low in all participating classrooms. Classroom one averaged 1.2 praise statements per session. In classroom two, no praise statements were observed. Classroom three averaged one praise statement per session. During treatment, frequency of praise in each classroom averaged higher than baseline. Classroom one praise averaged 19.4, classroom two praise averaged 19.9, and classroom three averaged 22.7. Additionally, upon implementation of the intervention, strength of change and immediacy of effect was demonstrated in classrooms one and two. In classroom three, it wasn't until session three of the training that an increase in praise was observed. During sessions one and two of training, teacher three initiated the intervention by reviewing the target skills and announcing the point goal and reward. She would then hand facilitation of the intervention off to the co-teacher. For the remainder of the first two training session, the co-teacher awarded points, bonus points, and praised students for demonstration of target behaviors. Because the co-teacher had not consented to data collection on her behavior, such data are not displayed. At the conclusion of training session two, the primary investigator requested that the primary classroom teacher implement all components of the intervention for the remainder of the study, including, behavior

specific praise and awarding of points. During the subsequent session, the primary classroom teacher implemented the intervention and an immediate increase in praise was observed.

With the implementation of the intervention, teacher reprimands decreased in two of the three classrooms. During baseline, reprimands averaged 28 in classroom one, nine in classroom two, and five in classroom three. Reprimands decreased in two of the three classrooms during treatment. In classroom one, average reprimands decreased to approximately seven per session. Classroom two averaged just slightly below two per observational session. In classroom three, reprimands averaged 6.8. A strong effect was demonstrated in classroom one and a moderate effect was shown in classroom two. Classroom three showed no effect.

There are several potential explanations for the variability in the data and the limited effect shown with reprimand statements. Because increased praise and decreased reprimands are a core component of the intervention, the classroom teachers implementing the intervention were required to demonstrate changes in their behavior, specifically, attending to appropriate behavior at higher frequencies. Prior to implementation of the intervention, the teachers relied on punitive measures to manage problem behaviors, such as, reprimands, checks, or removal from the classroom. In order to implement the intervention with fidelity, the teachers were required to increase behavior specific praise statements and decrease reprimands maintaining a 4:1 ratio of praise to reprimand. While implementing the intervention, both teacher one and teacher three reported the challenge in maintaining high levels of praise and attending to appropriate behaviors.

Disruptive or off-task behaviors often elicit teacher attention, whereas, on-task behaviors do not. Teacher reprimand statements are maintained by negative reinforcement. Meaning that, when off-task or disruptive behaviors are demonstrated, reprimands typically result in the

decrease of the problem behavior, at least temporarily. The reduction in problem behavior even for a short time reinforces the teacher's reprimand, making it more likely that they will reprimand students in the future who demonstrate problem behaviors.

An additional explanation for variability in the data was the length of observational sessions. Each observational session, with the exception of one that was terminated early by the teacher, lasted at least ten minutes. However, scheduling, fire drills, and teacher indicated length of observational session resulted in various durations of praise and reprimand frequency data collection. As such, the frequency of praise or reprimand showed increases and decreases with the duration of data collection.

A final explanation for the variability in praise and reprimands is the teacher training methodology. When teachers met the 90% criteria for fidelity of implementation and entered the treatment phase of the intervention, training consisted of performance feedback. It is possible that performance feedback alone was not enough to produce significant changes in teacher behavior. Perhaps a greater effect on praise and reprimand statements would have been observed in classrooms one and three with different methods of training.

***Question Four.*** Will teachers and student participants prefer the implementation of the CW-FIT intervention over typical classroom management strategies?

To evaluate social validity, participating teachers and students, both direct consumers of the intervention, completed consumer satisfaction surveys. Teacher responses are presented in Table 5, and student responses are presented in Table 6. High social validity of an intervention has been linked to sustained use (Ledford & Gast, 2018). As such, it is key for researchers to evaluate consumer satisfaction with an intervention. Ledford and Gast (2018) indicate that social validity should evaluate three dimensions: goals, procedures, and outcomes. The survey

responses in the current study measured each of these dimensions, and the results indicated social validity of the intervention as reported by both teachers and students.

Of the 15 statements included in the survey, there were several statements that teachers indicated strong agreement. The responses with high agreement suggest that the teachers found their students' behavior problematic enough to use the intervention. They also agreed that the intervention would be acceptable for problem behavior, and appropriate for a variety of children. Additionally, the teachers agreed that the intervention would not result in negative side effects and would be beneficial for children. Conversely, there were a few statements in which teachers indicated stronger disagreement. All participating teachers indicated dissatisfaction with the procedures of the intervention. The teachers also showed stronger disagreement with willingness to use the intervention in the classroom setting and finding the intervention to be a fair way to deal with children's problem behaviors. There are several implications to these findings.

The statements that showed stronger agreement suggest that the teachers were satisfied with the goals and the outcomes of the intervention. Low levels of on-task behavior were observed, reported by teachers, and indicated by teachers as significantly interfering prior to the introduction of the intervention. Additionally, the results of the survey responses indicate the teachers found the intervention to be acceptable, appropriate, and beneficial for children. Such results suggest that the goal of the intervention, increasing on-task behavior of students, was socially important and the outcomes were socially significant.

Despite the social importance of the goals and socially significant outcomes, the dimension of satisfaction with the procedures showed mixed results. All teachers indicated the procedures of the intervention were not favorable. At different times during implementation of the CW-FIT intervention, all three teachers reported that they did not like the timer going off



during class or asked if they could extend the interval beyond the 3-5 minute range. Such anecdotal responses to the procedures as well as the survey ratings indicate lower satisfaction with the procedures of the intervention. However, survey responses indicated that the participating teachers agreed that most teachers would find the intervention suitable and appropriate.

Finally, it appears that duration of implementation of the intervention may have impacted consumer satisfaction with the intervention. The teachers in classroom one and classroom two indicated higher satisfaction with all dimensions of social validity than the teacher in classroom three. For example, both teacher one and teacher two agreed that they would be willing to use the intervention in the classroom while the teacher in classroom three disagreed. Less agreement between teachers was also seen with finding the intervention to be a fair way to handle behavior. Both teacher one and teacher two agreed while teacher three disagreed. It is possible that with continued implementation of the intervention, teacher three's overall satisfaction with the intervention might have increased.

Student responses to the survey also indicated high levels of satisfaction with the intervention. The students agreed that CW-FIT was fair, would be good to use with other kids, and would help them do better in school. The students' responses also indicated that the students liked the intervention. The student responses show that the goals of the intervention were clinically significant, the procedures were acceptable, and the outcomes were important.

As previously noted, high satisfaction is linked to fidelity of implementation. Despite some mixed results, overall both teacher and responses indicate high levels of satisfaction with the intervention. The goals, procedures, and outcomes appear to be satisfactory to direct consumers of the intervention.

## **Implications for Practice**

The results of this study are consistent with previous findings evaluating Class-Wide Function-related Intervention Teams indicating that implementation in the intervention will Conklin, & Wills, 2015; Kamps, Wills et al., 2015; & Wills et al., 2016). However, this study presents an important extension of the existing literature base by demonstrating a functional relation between Class-Wide Function-related Intervention Teams and on-task behavior in adolescent classrooms. As previously discussed, limited literature has assessed the impact of classroom management strategies in adolescent classrooms as studies evaluating such practices have been primarily conducted in elementary settings. The findings of the current study suggest that when teachers implement the CW-FIT intervention increases in on-task behaviors and increases in behavior specific praise statements will be observed.

There are several important implications of these findings. First, the classrooms in which the intervention was implemented were heterogeneous, comprised of students from diverse ethnic backgrounds, students from low socio-economic status, students who are English Language Learners, and students receiving IEP services. Given that students with these characteristics are removed from classrooms at disproportionate rates, it is essential that researchers specifically evaluate the relation between classroom management practices and these minority populations to determine if improvement in behavior is shown. The findings of the current study indicate CW-FIT will lead to increases in on-task behavior for diverse adolescent students and may aide in the reduction of disproportionate discipline.

Another important finding is the relation between the behavior specific praise and reprimand ratio and on-task behavior. The largest drops in on-task levels in classrooms one and three corresponded with low praise. For instance, on-task levels decreased 18% during session

20 in classroom one. During that particular session, the teacher praise-to-reprimand ratio was 18:17, nearly 1:1. When praise increased during the following session, an increase in on-task behavior was observed. Another slight decrease was observed during session 24 (68%) during which the praise-to-reprimand ratio was 11:8. Thereafter, the praise-to-reprimand ratio stayed above the 4:1 criteria for the intervention, and on-task showed an increasing trend and stabilized. Similar effects were observed in classroom three when the teacher did not maintain the 4:1 ratio. During sessions 26 and 29, the praise to reprimand ratio was 17:7 and 20:17, respectively. Consequently, the lowest rates of on-task during treatment were also observed during those sessions. Although the teacher was able to maintain the praise-to-reprimand criteria, time constraints inhibited additional sessions of data collection in order to evaluate if consistent implementation would have led to further reductions of variability. Despite high levels of treatment fidelity, it is worth noting the differences in on-task when teachers did not maintain the 4:1 ratio. Such findings underlie the importance of behavior specific praise as a core component of the intervention.

Another important implication is consumer satisfaction with the intervention. Both teachers and students showed high satisfaction with the intervention. Because high consumer satisfaction has been linked to sustained implementation, such ratings suggest that teachers may continue to implement the intervention after the conclusion of the study.

### **Limitations**

Despite the promising results of the current study, there are several limitations to the research. First, teachers who participated in the study knew the purpose of the study and volunteered to participate. As such, they may have been more motivated to implement the intervention in their classrooms, have higher levels of fidelity, and be receptive to training and

feedback. It is unclear if the same outcomes would be observed if teachers were more hesitant to implement the intervention.

Second, the generalizability of the outcomes is limited by the small sample. This study included students from only one middle school building. It is unknown whether the outcomes of this study would generalize to students of similar characteristics in other settings. Additionally, specific diagnostic information of students receiving IEP services was not reported. It is unclear which specific diagnoses are most impacted by the intervention. Future research should further evaluate the impact of the intervention on adolescent students from diverse ethnic backgrounds and students with disabilities.

Third, time constraints posed a limitation to the study. The study was terminated prior to achieving stability in classroom three due to the end of the school year. It is unknown if variability in on-task behavior of students in classroom three and target students one, two, seven and eight would decrease and stability of the data would have been achieved with continued implementation of the intervention. Additionally, the researcher was unable to evaluate sustained implementation and return to the classrooms to collect follow-up data. As such, it is unclear if teachers would have continued implementing the intervention between the treatment phases. Time constraints also prevented the introduction of the Tier Two components of the intervention, self-management and help cards. It is unknown if the on-task behavior of the target students would have stabilized with the introduction of the second tier of the intervention.

A final limitation is teacher and student participation. As per the requirements of the participating school district, all students whose behavior was recorded were required to return signed consent forms. Signed informed consent was not returned for every child in the class, so the data represent only a percentage of the participating classrooms. Additionally, teacher and

student absences during treatment prevented continuous data collection of the dependent variables.

### **Future Research**

The results of this study indicate CW-FIT improves on-task behavior in diverse adolescent classrooms and shows an additional improvement in teacher behavior specific praise statements. However, future research should continue to evaluate the impact of the intervention in adolescent classrooms and address some of the limitations presented in the study. Such research should evaluate generalizability and validity of the findings, the impact of the Tier Two components of the intervention, level of training and support required to promote teacher fidelity of implementation, and the impact of the intervention on academic achievement.

To assess the generalizability and validity of the findings, researchers should continue to evaluate the impact of Class-Wide Function-related Intervention Teams on the behavior of adolescent students from diverse ethnic backgrounds and students with disabilities. While the results of this study are promising, replication is necessary in order to assess external validity of the intervention. Additionally, future research should seek to evaluate consumer satisfaction by collecting maintenance data to determine if the teachers continue implementing the intervention beyond treatment conditions and if student response to the intervention maintains. Also, in order to address the variability in target student response to the intervention, future studies should evaluate the outcomes associated when the Tier Two components, help cards and self-management, are implemented.

Given the differentiated levels of support and training required by each teacher to achieve fidelity of implementation, future research should seek to determine the type of training that results in the most robust impact on teacher implementation and what combination of modeling,

prompts, and feedback contributes to high fidelity. Additionally, as indicated on the socially validity survey and anecdotal teacher report, future research should seek to determine why teachers do not like the procedures of the intervention, and what improvements can be made in order for the teachers to rate the procedures more favorably.

Finally, research could evaluate the impact of the intervention on academic achievement. The demographic characteristics represented by the students in this study have been associated with lower academic achievement and higher rates of drop out. As such, it would be beneficial to determine if increases in the on-task behavior observed with the implementation of the CW-FIT intervention contribute to increases in academic achievement.

## **Conclusion**

Substantial evidence indicates disproportionality in the use of disciplinary tactics to manage classroom behavior (Losen & Gillespie, 2012). Students of color and students with disabilities are removed from classrooms at alarming rates and more often than Caucasian peers without disabilities. Such removal results in loss of instructional time, decreases in achievement, increased likelihood of dropping out of school, and increased chance of incarceration (Gregory, Skiba, & Noguera, 2010; Losen & Gillespie, 2012; Mallet, 2016). Given the disparate impact of discipline, stakeholders have called for the removal of punitive policies and increased emphasis of positive behavior intervention and supports.

Despite the urgency to reduce over-reliance on punitive management systems, schools and teachers continue to use such methods and may even be using them with greater frequency (Krezmien, Leone, & Achilles, 2006; Welch & Payne, 2010). As previously described, a possible explanation for the increased use of punitive measures is diversity in classroom composition. The national emphasis on inclusion means students with disabilities are spending

more time in mainstream classrooms where teachers have little preparation to effectively meet the needs of such students (Oliver & Reschley, 2010). Additionally, the proportion of minority students in classrooms continues to grow, and students from diverse ethnic backgrounds currently comprise approximately half of K-12 enrollment (Kena et al., 2015). Teachers may be demonstrating an over-reliance on punitive measures due to inadequate training and preparation to manage the behavior of their diverse student populations.

In order to reduce the disparate impact of discipline, it is essential that researchers identify positive behavior classroom management strategies teachers can implement that result in an increase in appropriate behaviors for students with disabilities and students from diverse ethnic backgrounds in inclusion settings. The purpose of this study was to evaluate Class-Wide Function-related Intervention Teams when implemented in diverse classrooms with adolescent students in order to extend the current research-base and ultimately reduce the disparate impact of discipline.

Consistent with previous findings evaluating the impact of the CW-FIT intervention, the results of this study demonstrated CW-FIT results in increases in student on-task behavior. All classrooms showed significant change in on-task behavior levels with the implementation of the intervention. Further, given the diverse characteristics of the student population, the results of the study suggest the intervention, CW-FIT, when implemented with fidelity, may reduce over-reliance on punitive methods to manage the behavior of adolescent students with disabilities, from lower socio-economic status, and from diverse ethnic backgrounds.

In addition, the current study suggests the intervention will lead to improvements in student behavior in inclusive learning settings. Two of the three participating classrooms were co-taught learning settings with a high percentage of students with disabilities. In both settings,

students receiving special services were identified as target students because of their high rate of problem behavior. With the national emphasis on inclusion and placing students in the Least Restrictive Environment, it is imperative that research evaluate the impact of interventions in settings with a high percentage of students with disabilities. The results of this study significantly contribute to the literature informing best practice to support students with disabilities and teachers in inclusion classroom settings.

Despite the limitations, the current study indicates implementation of Class-Wide Function-related Intervention Teams will contribute to improvements in student and teacher behavior. The results show that the intervention leads to increases in on-task behavior for students from diverse ethnic backgrounds, students from low-socioeconomic status, and students with disabilities. Additionally, the intervention improves the frequency of teacher praise. Finally, the results indicate that both teachers and students found the intervention to be satisfactory. Such results extend current literature assessing the impact of CW-FIT on student and teacher behavior and suggest the intervention may be effective at reducing emphasis on punitive behavior management strategies that disproportionality impact students of color and students with disabilities.



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## Appendix A

**Class-wide Function-related Intervention Teams (CW-FIT)**  
**Procedural Fidelity Checklist for Start-up**  
*Teaching the game and lessons*

School: \_\_\_\_\_ Teacher: \_\_\_\_\_

Observer: \_\_\_\_\_ Date: \_\_\_\_\_ Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

Skill taught by: \_\_\_\_\_ Skill: \_\_\_\_\_

General Procedures:	Observed	Quality
1. Skill(s) are prominently displayed in room.	Y N	0 1 2 3
2. Group lesson on skill lasts approximately 10 minutes.	Y N	0 1 2 3
<b>Teaching Lessons:</b>	<b>Observed</b>	
3. Introduction of skill. "Today we are going to talk about our school Rule....."	Y N	
<b>Definition:</b>	<b>Observed</b>	
4. Review: "Being _____ is _____"	Y N	
5. "What other ways can you ..." (school/classroom rule). (Answer: Quiet, calm voice; Work quietly; Have quiet transitions)	Y N	
<b>Rationale:</b>	<b>Observed</b>	
6. "Why is it important to ..." (skill being taught)? (Answer: So that we can have more time to learn each day, the classroom is quieter so people can work, so the teacher can help those who need a little more help).	Y N	
<b>Student Participation (Examples)</b>	<b>Observed</b>	<b>Quality</b>
7. Teacher provided high rates of opportunities to respond (Asked for volunteers from groups to share an example of what rule looks like in this classroom.)	Y N	0 1 2 3
<b>Review:</b>	<b>Observed</b>	<b>Quality</b>
8. "Those are great examples! Today, let's remember to be _____, in our classroom."	Y N	0 1 2 3

Total Fidelity Score \_\_\_\_\_ Total Quality Score \_\_\_\_\_

Total Score Possible \_\_\_\_\_ Total Score Possible \_\_\_\_\_

Total Score divided by Total Possible = % Yes \_\_\_\_\_ Average \_\_\_\_\_

## Appendix B

## Procedural Fidelity Checklist

_____ <b>Fidelity Score</b>	_____ <b>Group On Task</b>	_____ <b>Praise/Reprimand</b>
--------------------------------	-------------------------------	----------------------------------

School: \_\_\_\_\_ Teacher: \_\_\_\_\_ Observer: Primary or Reliability \_\_\_\_\_  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_ Subject: \_\_\_\_\_

Class Activity %: Whole Group \_\_ Small Group \_\_ Independent \_\_ One-to-One \_\_ Transition \_\_

CW-FIT Procedures	Observed
1. Classroom expectations clearly posted.	NP 1 2 3
2. Team point chart displayed.	NP 1 2 3
3. Daily point goal posted.	NP 1 2 3
4. Pre-corrects on skills at the beginning of session.	NP 1 2 3
5. Timer used and set at appropriate intervals.	NP 1 2 3
6. Points awarded to teams for use of skills.	NP 1 2 3
7. Praise/points to reprimand ratio approximately 4:1.	NP 1 2 3
8. Praise and reprimands were behavior/skill specific.	NP 1 2 3
9. Points tallied and reward delivered.	NP 1 2 3
<b>NP</b>	
<b>= Not Present = 0</b>	

Total Fidelity Score (TF) \_\_\_\_\_  
 Total Score Possible (TP) \_\_\_\_\_  
 TF divided by TP = % yes \_\_\_\_\_

## Appendix C

## Team Point Chart

**CW-FIT POINTS**

DATE:

REWARD:

GOAL:

TEAMS:	Timer Beeps:	1	2	3	4	5	6	7
POINTS:								

1. Follow Directions the 1<sup>st</sup> Time
2. Be Respectful



## Appendix D

### Teacher Consumer Satisfaction Survey Intervention Rating Profile-15

		Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Slightly Agree 4	Agree 5	Strongly Agree 6
1	This would be an acceptable intervention for children's problem behavior						
2	Most teachers would find this intervention appropriate for behavior problems	1	2	3	4	5	6
3	This intervention should prove effective in changing children's problem behavior	1	2	3	4	5	6
4	I would suggest the use of this intervention to other teachers	1	2	3	4	5	6
5	The children's problem behaviors are severe enough to warrant the use of this intervention	1	2	3	4	5	6
6	Most teachers would find this intervention suitable for the problem behaviors	1	2	3	4	5	6
7	I would be willing to use this intervention in the classroom setting	1	2	3	4	5	6
8	This intervention would not result in negative side-effects for children	1	2	3	4	5	6
9	This intervention would be appropriate for a variety of children	1	2	3	4	5	6
10	This intervention is consistent with those I have used in classroom settings	1	2	3	4	5	6
11	The intervention was a fair way to handle children's problem behaviors	1	2	3	4	5	6
12	This intervention is reasonable for problem behaviors	1	2	3	4	5	6
13	I like the procedures used in this intervention	1	2	3	4	5	6
14	This intervention was a good way to handle children's problem behaviors	1	2	3	4	5	6
15	Overall, this intervention would be beneficial to children	1	2	3	4	5	6

Adapted from Martens, B. & Witt, J. (1982) *The Intervention Rating Profile*. University of Nebraska-Lincoln.

## Appendix E

### Student Consumer Satisfaction Survey Children's Intervention Rating Profile

		I Agree	Do Not Agree
1	CW-FIT was a fair way to deal with classroom behavior	1	2
2	My teacher was too harsh on me	1	2
3	CW-FIT may cause problems with my friends	1	2
4	There are better ways to manage behavior than playing CW-FIT	1	2
5	CW-FIT would be a good game to use with other kids	1	2
6	I like CW-FIT	1	2
7	I think CW-FIT will help me do better in school	1	2

Adapted from Kratochwill, T. (1985). *Advances in school psychology volume IV*. Hillsdale, NJ: Lawrence Erlbaum Associates.

## Appendix F

### Research Compliance Approval Letter




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**To:** Renee Speight  
 BELL 4188  
**From:** Douglas James Adams, Chair  
 IRB Committee  
**Date:** 12/14/2017  
**Action:** **Expedited Approval**  
**Action Date:** 12/14/2017  
**Protocol #:** 1711083110  
**Study Title:** Implementation of Class-Wide Function-related Intervention Teams with Adolescent Students  
**Expiration Date:** 12/07/2018  
**Last Approval Date:**

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

**Adverse Events:** Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

**Amendments:** If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

cc: Peggy Schaefer-Whitby, Investigator  
 Suzanne Kucharczyk, Investigator